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The Dental Digest

May 1931

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THE DENTAL DIGEST

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THE DENTAL DIGEST

VOLUME XXXVII MAY, 1931 NUMBER 5

The Heart In Dental Surgery With Special Reference To Anesthesia*

By

AARON E. PARSONNET, M.D., F.A.C.P., Newark, N. J.

and

ALBERT S. HYMAN, M.D., F.A.C.P., New York, N. Y.

The constantly widening boundaries of knowledge in regard to the cardiovascular diseases and the greatly increased scope of methods of clinical approach have so changed many of the theories and ideas previously held about the heart that the dental surgeon today may find himself quite at a loss to evaluate properly the status of his patient's cardiovascular integrity.

The past decade has been especially replete with a rapidly changing order. Keeping pace with the singularly onward march of dental progress, it has contributed in no small degree to the remarkable achievements made possible through modern surgery. This may be due in no small measure to the perfected methods of anesthesia, whereby full poise and mental freedom have been made possible for the surgeon. Relief from those petty anxieties and former mental hazards which beset the dental surgeon of a generation ago are now, fortunately for the patient, history.

Cooperation of Dentist and Physician

Well-informed dentists, however, cannot avoid the feeling that the complacent ignorance so prevalent in previous days, so far as the patient's general condition is concerned, no longer is tenable professionally or economically. With the knowledge that dangerous and sometimes fatal results may be the outcome of hasty and therefore unscientific judgment, the enlightened oral surgeon invites the cooperative attention of his medical colleagues. Nothing short of a complete and careful estimate of the patient's physical condition will satisfy him, recognizing that the oral cavity with its component structures invariably reflects the health status of the individual.

Constitutional disease, for example, rarely passes the oral cavity unscathed. Diabetes, arteriosclerosis, gout, metabolic disturbances, endocrin disfunction and the ever-lurking shadow of syphilis are but a few of the general systemic ailments unmistakably affecting this region. If we add to these the ravages of age, a formidable array of pathologic conditions is presented for careful

* Read by Dr. Parsonnet before the Society for the Advancement of General Anesthesia in Dentistry, February 16, 1931, New York, N. Y.

consideration. In this connection the diseases of the heart and blood-vessels stand out in sinister relief as a true barometer of just how much or how little the dental surgeon may be permitted to exercise his professional skill.

From infancy to old age the patient presents many factors for both medical and dental consideration. Problems which are of the most intense interest at one age period may play no part in another. For example, the well-known predilection of the acute and subacute rheumatic infections for the early decades and the comparative rarity of these diseases after middle life stand in marked contrast to the blood-vessel changes, which are strictly confined to the latter age groups. In a similar manner the child-bearing period is fraught with hazards to which the adolescent girl and the elderly spinster are both naturally immune.

The Specter of Sudden Death

In every age period, however, the specter of sudden death hovers behind the dental chair during the course of anesthesia and constitutes the one possible hazard which may unfortunately supervene in spite of the most thorough medical and dental efforts. Fortunate, indeed, is the dental surgeon who has not experienced the mortification and mental anguish of such a harrowing episode. Death in a dental office always presents a problem of manifold professional and rather difficult social ramifications.

While many sudden deaths under anesthesia are totally inexplicable regardless of the most painstaking pathologic investigation, at the same time certain clinical entities leading to cardiac arrest are more or less well established. In childhood and young adult life sudden death under anesthesia is, sad to say, probably more common than the available statistical data would indicate. Masquerading under the little understood and pseudo-scientific term *status lymphaticus* or *thymic death,* many children have died from causes needing further elucidation. Recent studies have indicated that such deaths may be the result of an unstable pace-maker mechanism of the heart, and that the anesthesia temporarily paralyzes the release of the normal contraction stimulus. The heart in these cases, while functionally intact and anatomically sound, is unable to beat because the normal physiologic response is lacking. It is here that the quick-thinking and alert dental surgeon may be instrumental in saving a life by the restoration of cardiac activity. Hyman, of New York, has demonstrated that such stopped hearts may be quickly resuscitated by the intracardiac injection of some stimulant like adrenalin, ether or alcohol; in fact, he has demonstrated that even the prick of the needle may be sufficient to reestablish the heart beat.

The results obtained by this method of resuscitation warrant its wider use under such emergencies. In my experience it represents the simplest type of life-saving procedure and, when indicated under such anesthetic emergencies, may revive an otherwise lost patient.

Sudden deaths in the middle and advancing age groups while under a general anesthesia are perhaps more common. In these cases there is usually

some gross disturbance in the blood supply to the heart. The coronary arterial system may undergo degenerative changes which either materially reduce or entirely prevent the proper nutrition of the cardiac muscle. Such obstructions to the blood flow through the heart are always markedly enhanced by the general anesthetic, so that sudden and complete blockage of an important blood-carrier may take place. This condition is known as *coronary thrombosis and occlusion,* and when it occurs, it presents one of the most serious pathologic changes that can develop in the entire cardiovascular system. Sudden death is the rule, but patients may struggle through a more or less extended convalescent period, only to die from another attack or embolic complications sooner or later.

The chief concern of the dental surgeon in these unfortunate cases lies more in their recognition and anticipation than in the endeavor to treat the individual when such a disaster occurs. For this reason, therefore, attention must be directed to simple means of detection of this type of cardiac disorder. A brief but all-inclusive group of generalizations is permissible for dental surgeons who have neither the time nor the equipment to make an exhaustive study of the patient's heart and blood-vessel status.

Signs of a Failing Heart

The use and application of the stethoscope, blood-pressure apparatus, fleuroscope and the electrocardiograph find no place in a discussion such as this, but without in any way dismissing their importance our attention should be turned to a strict analysis of the simpler objective signs of the failing heart. For this purpose no equipment other than the natural faculties of observation and deduction, aided by common sense, need be necessary. If added to these is that sixth sense, developed through cumulative experience, there is given to the practicing dental surgeon an adequate safety factor which will remove many of the mental hazards and indecisions that daily confront him in the practice of his profession.

Whenever the heart and blood-vessel system are unable to deliver nourishment to the various parts of the body, a condition known as *heart failure* ensues. This nourishment, while consisting in great part of metabolized foodstuffs, contains also certain chief life-sustaining gas elements. Upon an adequate interchange of oxygen and carbon dioxid will depend the well-being of the individual. The sole function of the heart is to propel the fluid media to the most distant and remote areas of the body. Any disturbance or interference in this normally rhythmic and uninterrupted function immediately ushers in symptoms of simple clinical recognition. These symptoms in the very beginning are based upon insufficient oxygenation of the blood stream as it passes through the lungs. The heart for one reason or another is unable to deliver the blood fast enough or in sufficient volume to provide for the demands made upon it at that instant of time. Mechanically one of two things will happen: either the heart must beat faster or the lungs must be ventilated more rapidly. In

other words, the individual will have a faster pulse rate and breathe more rapidly than might be anticipated in a normal person. In the last analysis every patient may be rapidly classified as to whether or not he has heart impairment, depending upon his response to physical exercise. The change from a resting state to one of activity calls into play many mechanisms of the utmost complexity, all serving to regulate the cardiovascular balance. When any one of these factors is disturbed beyond immediate repair, heart failure in one degree or another results.

How to Estimate the Patient's Heart Function

How can an estimation of the patient's heart function be made by the dental surgeon? In its simplest form such an exercise test can be made upon every individual after he has ascended a flight of stairs. Two symptoms will be noted: the patient complains of pain or of breathlessness. Depending upon which of these two factors predominates, a probable diagnosis of the type of failing heart will be made.

When the pain factor dominates the picture, such individuals may be put into the stenocardial or anginal group. Angina pectoris is a very serious affection of the heart itself and is probably due to an inadequate coronary arterial blood supply. Anginal pain is characteristic. It is severe, never occurs without effort and is practically never seen in the young. This pain is described as constricting and vice-like in character and occurs in the upper half of the chest and not necessarily over the heart. In severe cases the pain may be so intense that it radiates to other parts of the body, most commonly down both arms and to the fingertips. Such patients when questioned will give a history of many such similar attacks, and they know that they are especially prone to such seizures when the weather is cold or when they are exercising after meals.

This class of individuals represents a very dangerous group, so far as general anesthesia is concerned, and many fatalities have been known to occur as a result of operative interference of any kind. Nothing short of a complete cardiovascular survey should satisfy the careful dentist, thereby sharing the responsibility with the physician and a forewarned family. These cases fare no better even under local or regional anesthesia, more particularly when adrenalin is used in conjunction with the drug employed. In fact, adrenalin has recently been employed as a provocative test in doubtful cases of angina pectoris, and individuals prone to this disease have exhibited serious reactions. To go further in such instances would unquestionably prove disastrous. The question naturally arises here, what action should the dental surgeon take when confronted with such complications? What will be the safest anesthetic to use, if any is to be used at all? The answer, unfortunately, is the same as the one confronting the general surgeon in the presence of an acute gallbladder or a case of suppurative appendicitis or, in fact, in any other acute surgical emergency. The operative procedure must go on; the operator must tax his skill to the utmost and complete the operation as expeditiously as

possible. Under such conditions the presence of an attending physician should be urged and is highly desirable.

Of the two great groups of heart failure this group is by far the less common. Some comfort can be derived from this. For the other class of cardiacs it can be said that they are less likely to present such serious emergency problems. These are the individuals who complain of breathlessness on exertion, but who are singularly free from pain. They may, however, complain of palpitation, but this is usually secondary to the distress suffered through dyspnea. Individuals in this category extend over a wide age period from early adolescence straight through to the late decades. If in addition to the breathlessness there is presented a slight but persistent cough, which is made worse by exercise, or if the patient volunteers the information that he gets the cough only when physically active, the conclusion can be drawn that this case presents features of imminent myocardial failure. At the same time such individuals may speak of other associated symptoms: swelling of the extremities of one degree or another, epigastric oppression, occasional dizziness or vertigo, insomnia, and excessive heart consciousness, even while at rest. All these things the patient will probably tell to the dental surgeon upon questioning, but to the alert observer many additional bits of information will be furnished upon careful scrutiny. Cyanosis or blueness of the lips and other mucous membranes of the mouth, dusky pallor of the face, livid or bluish fingernails, slow and studied behavior of the patient and his reluctance to activity in general speak volumes.

The Pulse Rate

Up to this time we have employed no other diagnostic procedures than those of observation and deductions based upon historic data. At the same time we have received enough information to forearm us in regard to the patient's cardiovascular integrity. If the dental surgeon can now palpate and identify the pulse at the wrist, an entirely new and very fruitful field is unfolded before him. An entire gamut of cardiac irregularities may be studied and recognized from the pulse alone. It is not within the scope of this paper to enter even cursorily into a discussion of these various types of heart irregularities. There are, however, certain general observations which may be made, and which may be taken as dependable guides for the estimation of heart efficiency. A certain routine formula of examining the pulse should be employed. Such a procedure is quite simple and may be tabulated as follows:

First comes the rate of the pulse. Normally the pulse range in the human is confined to a rather narrow limit. From 60 to 100 beats per minute may be considered physiologic. Rates below and above these figures indicate the necessity for further study, and while there is a more or less normal group in whom the pulse rate may drop as low as 52 or be as high as 100, for practical purposes the discovery of rates outside these extreme limits should be taken as suggesting cardiovascular pathology.

Next in order is the rhythm of the radial contractions. Here a little more skill and concentration are required. When the rhythm of the pulse is suddenly interrupted by a skip or a pause, and when such interruptions seem to occur only three or four times a minute, a presumptive diagnosis of extrasystoles or premature beats may be made. This is one of the most common disturbances of cardiac rhythm and in the vast majority of instances is of small importance. When, however, the irregularity is very frequent, or where it is persistent, and does not seem to follow any definite order, a condition known as *auricular fibrillation* is probably present. Auricular fibrillation is a very common disease of the heart, and when there are no serious signs of heart failure, this condition is no contra-indication for surgical intervention. If the rate is very high, that is to say, above 120 beats per minute, it is advisable to return the patient to his physician for a regime of complete rest and digitalization. If the rate lies within the 60 to 100 beats per minute group, the patients, in spite of their cardiac pathology, can be handled with safety, even in the most serious operations. The choice of anesthetic is of relatively small moment, as such persons do remarkably well under both local and general narcosis.

When the pulse rate is unusually slow and reaches only a rate of 45 or less and is met with in the middle and advanced age periods, a diagnosis of heart block in one of its various forms may be made. This irregularity is far more dangerous, indicating an advanced heart-muscle involvement, and unless the need of surgery is of the most urgent kind, such patients are better left alone. Sudden death in this group is not uncommon, particularly under general anesthesia. They may, on the other hand, tolerate block or local anesthesia rather well, provided adrenalin is used in small amounts.

This completes the irregularities of the pulse for all practical purposes, but the discussion is by no means exhaustive. Any further study of these irregularities would entail the use of complicated cardiovascular instruments not within the province of the subject at hand.

Use of Blood-Pressure Apparatus

The next step in the examination employs the use of the blood-pressure apparatus. Formerly reserved almost exclusively for the use of the medical profession, this instrument has within the past decade been rightly considered as belonging within the province of dental teaching as well. All dental schools now instruct their students in the use and interpretation of the blood-pressure machine, and sooner or later every dental office will consider it an essential part of equipment. Here again it is not the intention of this paper to delve deep into the methods of determining blood-pressure, and it is assumed here that the competent dental surgeon of today understands how to make a blood-pressure reading. We wish at this time only to point out when such readings may be considered as offering a hazardous element in the administration of anesthesia.

In general, there can be no contra-indication to block or local anesthesia, so far as blood-pressure is concerned, when these figures are confined within

the wide margin of 90 to 180 systolic. Even these figures in individual cases may be somewhat stretched both ways. For example, in slender young women a systolic blood-pressure of 80 or 85 may be perfectly normal, while in the obese, overfed and underexercised middle-aged group of both men and women a systolic blood-pressure of 190 requires but moderate caution. Pressure levels below and above these figures indicate serious obstacles to the use of anesthesia, both local and general.

With the information thus secured the dental surgeon has by this time obtained ample data upon which to base the cardiovascular status of the patient. We have especially made no mention of the use of the stethoscope, feeling that auscultatory examination of the heart will more often confuse than aid the examiner. Moreover, the presence or absence of murmurs, in the light of present knowledge and views, adds little information to the competency or impairment of the heart muscle, which, after all, is the more important factor for consideration. The type and quality of heart murmurs and the other minutiae which go to make up a complete cardiovascular survey can be evaluated only by those especially trained in this specialty of internal medicine. Many erroneous deductions have held sway in the past in the superficial conclusions drawn from an attempt to estimate the degree of valvular incompetency from the loudness or intensity of the murmurs present. A decade ago, for example, the notion was prevalent that a very loud murmur meant a very badly leaking valve, while a soft or blowing murmur meant but little damage. The fallacy of this thought is now well established. The dental surgeon, therefore, need pay scant attention to this phase of cardiac analysis.

CONCLUSION

In conclusion, it may be said that the problem of anesthesia in heart disease, as it concerns the dentist, may be narrowed down to certain fundamental principles which are readily understandable. In all cases requiring anesthesia, and where there is no medical adviser, the dental surgeon should be prepared to estimate roughly the risk involved by his operative procedure. He should have certain definite standards by which he can measure the efficiency and the ability of his patient's cardiovascular system. This yardstick of knowledge need not comprise anything more complicated than his own natural faculties of observation and deduction. A few simple questions and a few even simpler tests, such as palpation of the patient's pulse and the patient's reaction to exercise, together with a cursory blood-pressure estimation are all that is necessary to divide every one of his cases into two groups, the cardiac and the non-cardiac. To the latter he need pay no attention, and to the former only as far as the estimated risk of anesthesia is concerned. When the degree of cardiac impairment is slight, the dental surgeon will guide his procedures accordingly, but when these simple tests suggest more or less serious heart damage, he will do well to share his responsibility with a medical colleague.

No attempt has been made in this paper to make diagnosticians out of the dental profession, and the dicta laid down here are neither exhaustive nor unshakable, but in making the dentist more competent the welfare of his patient will be markedly enhanced, and this, after all, is the joint goal of both the physician and the dentist.

DISCUSSION

Alfred Ackerman, B.S., D.D.S., Newark, N. J.—Dr. Parsonnet has ably shown us that he knows more about the heart than we shall ever know.

I shall attempt to discuss the heart from the point of view of anesthetics. We are constantly faced with the problem of anesthetizing different types of patients. I have always felt that the biggest problem is the fact that the patient "comes in from the street," which is the common expression used. The problems the patient usually presents are such as these. He has been up all night with a terrible toothache. He gets up in the morning nervous and jumpy. He decides that he will have a good meal to brace him up so that he will be able to withstand the anesthetic. He then tears down to the office in the subway, sits down in the chair and says, "Doctor, give me some gas and take out this tooth." We are expected to put him to sleep quietly and send him home without his tooth.

When you administer general anesthesia, you cause a strain on the heart, no matter how slight. Ordinarily that strain is easily handled by the heart in the reserve zone. When the reserve is cut to a narrow margin, it takes a little additional strain on the heart. This is the period when a person is particularly out of breath and might have a pain in the heart. He is all out of wind. If it were absolutely necessary to run away from some danger, a man could produce more energy than he would normally produce.

When a patient walks into the office, it is not essential to give a cardiographic examination and have a stethoscope around. It is undoubtedly true that a man who has seen enough cases is well able to recognize a heart case which would contra-indicate the use of an anesthetic. The patient with a bad heart can be readily recognized by a good observer. He says that he gets breathless easily. He has a tendency to do things slowly. He has rings under his eyes. He looks ill. You can almost pick out the man who is not a good general anesthetic risk.

The reason why we have no more deaths is because patients inform us about their heart condition. Some have slight heart lesions and can stand the strain of general anesthesia.

Max Jacobs, M.D., D.D.S., Boston, Mass.—May I first say a word before I offer a comment on the paper of the evening? Your society has caused a great deal of very favorable comment in Boston, so much so that a great many men whom I know have actually asked me to tell them what is going on here tonight, as they would feel it a privilege to come here before you. I am glad to appear here as a member, for which privilege I thank you.

As for the paper, I feel that the essayist has given us about as thorough a knowledge of what we ought to know about the heart as could be gotten in such a limited time.

Two particular things are important. First, how are we to know quickly who is the patient who is suffering from heart disease when he enters our office? It is a risk to give such a patient anesthesia. Our anesthesia is of short duration. We give patients oxygen with nitrous oxid. There is not so much cause to worry. The principal importance for us as dental men is to pick out the type of anesthesia indicated for the individual case. Some of us want to give general anesthesia to every case. Some of us want to give local anesthesia in all cases. I think we would do better if we stated each type of case in which general anesthesia is indicated.

M. D. Senft, D.D.S., New York, N. Y.—If we are to ask patients questions such as have been devised by previous speakers, we are placing these people in a nervous condition. Nervousness is brought about by certain direct questions asked by us. Patients come to us assured that everything is going to be all right. Imagine the condition of a patient if we ask him when he comes in, "Have you ever had any trouble with your heart? Have you ever had T. B.?" Some knowledge about the heart and physical condition of the patient is necessary to guide the dentist. The sixth sense of the dentist seems to have carried him through so far. But in so far as going any deeper, we are rather hazy on the subject of hysteria.

James T. Gwathmey, M.D., New York, N. Y.—I enjoyed the paper very much for the simple reason that all of Dr. Parsonnet's ideas agree with mine absolutely. He did not go into detail as to what dentists should do nor state that the dentist should go into detail with the patient as to his heart, etc.

I do not believe that a dentist will ever have any trouble with a patient with heart disease, provided that he gives anesthesia as we think it should be given, that is, with plenty of oxygen from start to finish, and keeps the patient pink. I do not think he runs any risk, regardless of the patient's heart. The athletic alcoholic is the kind to be afraid of. He can take a long deep breath and hold it and force all the anesthesia in his lungs into his heart at one time. If the anesthetic is given improperly, the patient can be asphyxiated. If given properly with oxygen from start to finish, we can get over that. The patient who should be feared is the policeman; he is in robust health. Also the laborer or anybody who makes his living by his hands—the strong, robust man. Unfortunately, these die. You should have oxygen and carbon dioxid on your apparatus. If we know the difference between asphyxia and anesthesia, we run no risk whatever.

Six months ago I was called out of the city to give anesthesia to a patient seriously ill. The patient looked as if he were dying. The doctor said, "Well, his condition is such that he will die without an operation, and we are going to take that chance." Fortunately, the patient died as we were putting him on the stretcher. If he had lived ten minutes longer and I had put the mask

on the patient's face, a great many people would have said that he died from anesthesia, or that the surgeon killed him. But, as I said, it was fortunate for him that that man died before I was able to put a mask on his face.

The essayist referred to the fact that we should not anesthetize a patient when his pulse is below forty or above sixty-five. I remember, as a boy, before I studied medicine, a boy who was a tumbler in the circus. His pulse beat was well below forty. His heart compensated for that strenuous vocation when he started to work. As far as I know, he may be still living and still tumbling in a circus. As to the pulse above forty, I know that when I first started anesthetizing, in some of the hospitals where we gave gas-ether it was nothing unusual to have a patient's pulse run to 140. It was wrong, but we never had any deaths there. We must remember we are playing with something. Any agent that can produce local or general anesthesia can produce death if we carry it to its conclusion. Local anesthesia is not by any means an escape from the trouble. Novocain can kill a patient. That can be demonstrated in any laboratory on any small animal. A small amount can kill an animal. Is the patient safer under local than general anesthesia? I agree that the thing to do is to reassure the patient and, after the anesthetist has started, to reassure and to give anesthesia so that there is no strain upon the heart at any time.

Angina pectoris was referred to. Nothing is more painful than an attack of angina pectoris. If any one should call upon me, I should be glad to give such a patient ethylene because I know it would relieve that patient of pain and not kill him. I would see that his heart did not give him any trouble. *If the patient were suffering from angina pectoris, I should not be afraid to give him full anesthesia as a therapeutic measure and to tide him over an attack.*

Dr. Parsonnet.—I am glad the chairman takes pleasure in asking me to unravel these questions. If I overlook any one, it will not be because I am not interested in that gentleman's discussion. You are so numerous.

In answering Dr. Ackerman, let me say that it was a pleasure to listen to him. He has the genuine point of view of a cardiologist. He is not concerned with murmurs. He is concerned with what that particular person's cardiac reserve is. That is the modern conception of heart disease. McKenzie in 1902 said that if Lencke had left the heart alone, we should have been ahead in heart disease.

I am not interested in the murmurs I listen to. I am concerned mainly with how much of that four-cylinder engine has been damaged, how long that damaged engine will exist. That is the true conception of heart disease. Does that particular heart do its work? The question of an engine being noisy does not enter if that engine can make the hill on high.

I spoke of the high pulse rate. A great many patients with rapid pulse suffer from some thyroid disease. Thyroid patients do not do well. Can we risk the life of a patient for a little repair? Many patients can get along with less surgery than is being done.

Mention was made of children and anemia. This often means rheumatic

heart disease. It seems a condition where streptococci are in the blood. To combat such a condition, take the temperature of such patients. They run a subnormal temperature or a temperature of 102 or 103. They very seldom have murmurs.

A cardiac patient won't wait for you to question him. He will tell you about all the doctors he has visited. I ask you to observe the patient to see whether he looks blue around the mouth, whether his breathing is studied and slow. Ask questions carefully and pointedly, but not too many.

It is important to know whether the case is angina pectoris. General anesthesia should be used for an immediate, severe attack. The patient would die from the attack if it lasted. He must be relieved promptly and efficiently. A case of coronary thrombosis may die suddenly. Many cases will die after surgical operation within three weeks. Some cases live three, four, five or six years without surgical interference. It requires study, deliberation, and less confidence. The patient does not die in the office, but that does not help us. We do not want to kill him; we want to do something constructive rather than destructive.

I am pleased and honored that Dr. Gwathmey saw fit to discuss my paper, and far be it from me to make any contradictions.

I want to thank all of you for letting me come here and for listening to my paper.

[GROWTH]

Growth abnormalities may be hereditary or congenital. However, remember, above all, that the biological basic principles underlying all growth maintain that in the very processes of growth and differentiation there are periods of acceleration and periods of retardation; also, that growth rate is intermittent or spasmodic. Growth itself is continual; only its rate varies. Nature has set down somewhere within the make-up of the individual, and in a manner not even faintly perceived, inherent powers and characteristics which are individually normal, and, so long as the outside aid of orthodontia is working along with these innate possibilities, the results are more lasting and permanent. Let it be understood that if the orthodontist adjusts the dental arch abnormally, nature will do all in her power to correct the erroneous positions of the teeth when the retaining appliances have all been removed.

—LANCET.

A Simplified Method For Bringing Unerupted Teeth Into Their Normal Positions

By IRVING SPENADEL, D.D.S., New York, N. Y.

Instructor of Orthodontia, Postgraduate School of Allied Dental Society; Chief of Orthodontia Clinic, Community Memorial Dispensary and Broad Street Hospital; formerly Instructor in Department of Orthodontia, New York College of Oral and Dental Surgery.

Deeply impacted and unerupted teeth situated in the palate or in the mandible are in many instances responsible for a variety of nervous anomalies—neuralgia, headaches, general irritability, etc. A condition of unerupted or impacted teeth is frequently caused by early loss, extraction of the deciduous teeth, retarded development, congenital or hereditary manifestations. Heredity is unquestionably an important contributory factor. Only recently I had an extreme case of heredity in my practice where three generations were affected in almost identically the same manner, the impacted cuspid tooth lying in the same position in the mouths of the grandfather, the father and the son.

Orthodontists have no doubt come to a realization of the seriousness of a condition of unerupted or impacted teeth, yet they evade the issue, rarely tackling it in the line of scrimmage, so to speak, and the average practitioner, as a general rule, is hesitant about referring cases of deeply imbedded teeth, for he is under the impression that such cases cannot be treated properly, and that the chances of getting good results are negligible.

Treating unerupted teeth so situated in the anterior part of the mouth, as a matter of fact, affords an orthodontist excellent opportunities for doing truly creative work and securing gratifying results. In view of the favorable results which can be obtained in cases of this kind with a marked degree of facility, provided, of course, a correct and suitable method of treatment is employed, it is doubly surprising that some orthodontists fight shy of undertaking such cases, and that the average practitioner is reluctant to refer patients so affected.

The method which I have been using with unprecedented success since 1921, that of bringing the teeth into their natural environment without cutting into the tooth substance, has proved conclusively to me that it is by far the best method yet advocated, for not only has it brought me results, but it is the most convenient for the patient, who does not, comparatively speaking, suffer any pain or inconvenience.

After several years of experimentation with this method, having convinced myself of its superiority over others, I recommended it to a number of oral surgeons and general practitioners, who have since successfully introduced it into their practice. Without a single exception they are all enthusiastic in their praise of its practicability and preferability, for the method not only is simple, practical and easily manipulated in the mouth but is also soothing to the patient, who is not in any way hindered in his pursuits on account of it.

It has been customary for some practitioners to treat a condition of unerupted teeth as a surgical case, using forceps as the only medium for relief.

This method is inadequate and generally unsatisfactory, for it cannot possibly produce the esthetic result attained by bringing the unerupted members into their natural positions. For the past seven years, during which time I have been perfecting this method of bringing unerupted teeth into their normal positions, I have in every instance been able to get the affected tooth into its normal place, no matter in how bad a position the tooth had developed or how deep it had lain.

Fig. 1
X-ray showing unerupted teeth in the palate.

Some orthodontists, in treating cases of this kind, have been wont to cut a small hole into the substance and cement a pin into the opening; others have cemented an inlay or onlay over the tooth and in that way have tried to move the tooth into the line of occlusion. In cases where the tooth is partially exposed or is lying directly under the gum tissues, the desired result will be secured; however, in cases of deep-seated malposed teeth it will not work satisfactorily. The cicatricial tissue, formed when the bone is chiseled away, fills in very quickly and has a tendency to cover the wound, frequently pulling the cement pin or vehicle out of place or entirely covering it. When this happens, it is necessary for the operator to cut away the adhesive tissue every so often before it is possible to bring the tooth in question down sufficiently low.

Fig. 2
The gold core placed in the mouth and attached to the appliances.

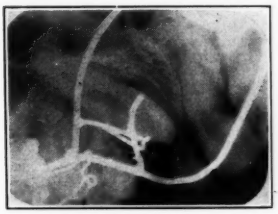

Fig. 3
After the teeth were brought to the surface, the gold core was removed and the case finished with finger springs.

I am citing herewith some completed cases and some still under treatment, which will, I believe, explain more comprehensively the method which I have been using. The results which I have obtained with these cases described, and with others which I have not gone into, substantiate my theory that it is not

necessary to cut or mutilate the tooth substance in any way, as many orthodontists still contend. I have at no time in my practice found it necessary or expedient to do so for the insertion of a pin, an inlay, a pin-lay or a cemented pin auxiliary.

Figs. 1-3 show the case of a young lady, aged eighteen, in the theatrical profession who constantly suffered from severe headaches for a period of years. An x-ray examination revealed two unerupted cuspid teeth badly impacted, the deciduous teeth being in position. Her dentist had never called her attention to this condition. The teeth were opened upon surgically and a portion of the crowns exposed. One of the malposed teeth was so badly impacted that the surgeon encountered a great deal of difficulty in removing the surrounding tissue for fear of the possible extraction of the lateral tooth.

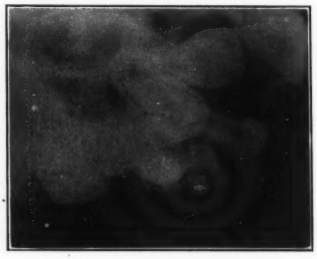

Fig. 4
X-ray showing the condition as originally presented.

Figs. 4-5 are of a young boy, six years of age, who presented with a cystic condition over the right maxillary central root, due primarily to traumatism; the root had not yet formed, the incisal tip lying at an obtuse angle to the plane of occlusion. The cyst was opened and drained, every precaution being taken, of course, to leave the tooth intact, as shown in the photograph. Fig. 5 shows the tooth in its new position with the root forming normally, in spite of the fact that it had been moved from the cystic area in an arc of a circle.

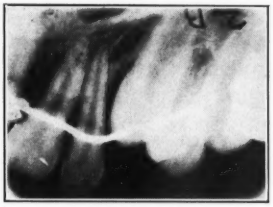

Fig. 5
Tooth in its new position, with the root forming normally.

Figs. 6-8 are of a young girl, aged seventeen, with a rather unusual malposed cuspid tooth, the unerupted tooth lying perpendicular to the molar roots under the floor of the antrum. The radiogram clearly shows what an exceptionally long-rooted tooth it was. The tip of the cuspid pointed upward toward the muco-buccal fold alongside

Fig. 6
X-ray of an unusually long-rooted cuspid lying at the floor of the antrum with the cusp almost at right angles to the apices of the lateral.

the maxillary right central incisor. This was opened surgically and a small portion of the cuspid was exposed. Inasmuch as the lip interfered with the work and did not enable me to drill for a pin or use a core, it was an extremely difficult position to work from.

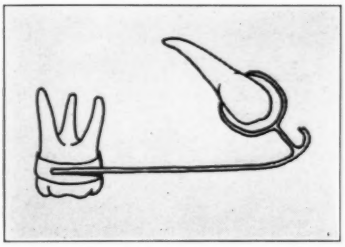

Fig. 7
The wish-bone finger spring attached to the cuspid, which was soldered to the main alignment wire and in that way exerted pressure.

Fig. 8
X-ray of the tooth in position.

I overcame this obstacle, however, by constructing a wish-bone, resembling iceman's tongs, to the lingual appliance, which slipped under the soft tissue as near the cemento-enamel junction as I could possibly reach, exerting a downward pressure and bringing it out sufficiently to enable me to put a band in its place later on, after the wish-bone had done its work.

Figs. 9-14 are of a girl, eighteen years old, with two unerupted cuspid teeth lying almost horizontal to the plane of occlusion. She had been suffering spasmodically from neuralgic pains. The teeth were deeply imbedded in the bone, so much so that the crowns of the unerupted teeth rested on the apices of the centrals. The surgeon who opened the palate to expose these affected teeth was fearful lest he cause traumatic injury to the centrals while working.

Fig. 9
X-ray showing the case as presented.

Immediately after the surgeon had removed the tissue, and while the patient was still under the anesthetic, I placed both cores into the opened wound and attached them to a lingual base-wire, as shown in the photograph (Fig. 10). Only a short time later, when the tissue had healed, the cores were removed and finger springs allowed to remain in the mouth to complete the work, as shown in the radiogram shown in Fig. 11. Fig. 12 shows the teeth in the changed position, and Figs. 13-14 show the teeth in their natural position, after the work had been completed.

Fig. 10
Reflected view of the lingual appliance. Notice by the width of gold the depth of bone removed to expose the crown. Note finger springs attached to the main wire.

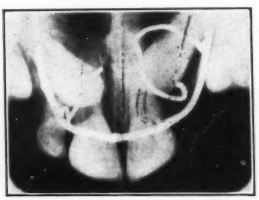

Fig. 11
The case continued with finger springs.

Fig. 12
The impacted teeth in their new position.

Fig. 13
The completed case.

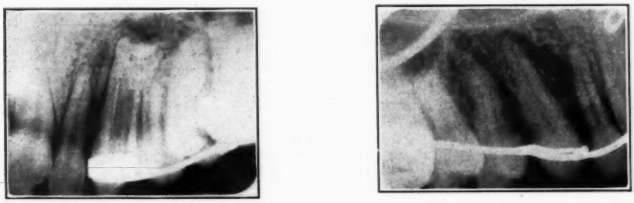

Fig. 14
X-rays of the completed case.

In conclusion, this method of moving unerupted and malposed teeth into their line of occlusion I have found to be simpler and easier to manipulate than any other method that I have seen or tried, and there are very few methods that I have not tried at some time or other. I adhere to this method for its simplicity in construction and the ability of the patient to go about his immediate business at once without any deleterious effects. I have had well-known singers and teachers who at one time or another have had this work done with no unpleasant effect.

The method evolved is to construct first the necessary type of appliances, making no difference as to the type whether labial or lingual. The patient is then sent to the oral surgeon, who exposes a portion of the crown of the unerupted tooth, at least a third. The patient is immediately returned to the orthodontist while still under the influence of the anesthetic. This is preferable, as the operator can work with greater ease, and the patient is more comfortable while the working field is still tender.

The appliance is replaced in the mouth, and an impression is taken, making sure to obtain an accurate impression of the wound produced by the oral surgeon. After the model is obtained, the outline of the wound is made sharper by tracing it with a penknife or any sharp instrument (the object of this is to obtain a very tight-fitting core, which will prevent the granulation tissue from filling the cavity and obliterating the exposed portion of the tooth). After this is done, a thin-gauge gold backing is burnished well into the wound, and a window is cut in the gold, exposing the exposed portion of the tooth. This core is then flushed with gold, soldered to the main base-wire of the appliance and placed in the patient's mouth. A few days later, when the tissue has healed sufficiently, a finger spring is soldered to the appliance, which is inserted into the core, and pressure is exerted in the direction desired.

There is no reason why unerupted teeth should prove more difficult in treatment than other phases of orthodontic work, even though a condition of unerupted teeth may appear to be more difficult at first. I trust that the methods outlined above will do something in the way of encouraging orthodontists to undertake such cases and prove of help to them in the treatment thereof.

160 West 87th Street

An Outline of Dental Pathology

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III

Influences of the nervous system upon inflammation.

The particular course taken by an inflammatory process is controlled to a considerable extent by the nervous system.

It is an important fact that inflammation in an area supplied by one portion of a nerve may excite some inflammatory disturbance in areas supplied by other branches of the same nerve, as exemplified in redness of the face in cases of toothache, etc.

Classification of inflammations.

Inflammations are classified according to the most marked feature of the process, which varies with the structure and position of the tissue affected and with the nature and intensity of the irritant.

Degeneration.

The process of inflammation may not go beyond degeneration, followed by restitution or regeneration of tissue cells, while vascular changes are slight and exudation is wanting.

The grade of degeneration varies with the intensity of the process and with its duration.

Different infectious diseases and toxemias show a tendency to affect especially different tissues and organs.

Exudative inflammation.

Exudative inflammation is marked by vascular changes and exudation of serum, fibrin, pus and blood. The character of the exudate varies greatly according to the intensity of the irritant and the structure of the tissue.

If the exudate consists largely of serum, the process is called *serous inflammation;* if of fibrin, *fibrinous inflammation;* if of pus, *purulent inflammation.*

Mucous membrane.

Simple exudative inflammations are often limited to the mucous membrane and are then called *catarrhal.* The term *catarrhal* emphasizes especially (1) an exudate thrown off from a surface and (2) exfoliation of living cells.

The changes affect (1) the stroma, which is composed of reticular connective tissue, in the meshes of which lie many lymphocytes. The stroma supports blood-vessels and a rich system of lymph vessels. Important changes affect (2) the glandular layer, which contains glands lined by epithelium. The stroma suffers the usual changes of exudative inflammation in connective tissue. The lymphocytes are often multiplied. The exudate infiltrates the stroma, and in favorable cases it reaches

the surface and is thrown off as a discharge mixed with mucus from the glands. In some cases there is less discharge and more marked infiltration of the stroma. The exudate may be largely serous.

The glandular layer suffers from the exfoliation of living cells, often leading to superficial erosions or ulcers, which are later fully repaired by a new growth of epithelial cells. The function of the glands is disturbed. At first the secretion of mucus is inhibited (dry stage); later it is increased, altered in quality and mixed with pus, and at the same time the congestion of the vessels is to some extent relieved. The duration of the dry stage in catarrhal inflammations varies in the different mucous membranes and seems to bear some relation to the amount of lymphoid tissue in the membrane. Abundant fibrinous exudates sometimes form on mucous surfaces and adhere to them as a sort of pseudomembrane, but without the necrosis of cells which occurs in diphtheritic processes. This process is called *pseudomembranous inflammation.*

Necrotic inflammation.

When exudative inflammation is so severe as to lead to death of considerable areas of tissue, the process is called *necrotic inflammation.*

From the prognostic standpoint this class of inflammation is very important, since the affected tissue is never restored to its normal condition, but the dead areas are replaced by connective and cicatricial tissue, leaving scars.

Intense bacterial or chemical irritants often lead to such severe exudative processes that an area of tissue is rendered necrotic, fluidified and infiltrated with pus, forming a localized abscess. The abscess may present three zones:

(1) A central fluid zone of pus and cellular detritus.

(2) A middle zone of marked leucocytic infiltration and degenerating tissue cells.

(3) A peripheral zone of congestion and moderate exudation.

The outcome of an abscess may be:

(1) Evacuation of the pus and healing by granulation tissue, cicatricial and a scar.

(2) Encystment of the pus with a fibrous wall.

(3) Chronicity.

The walls of the abscess may be held apart, infection and suppuration continue and a chronic pyogenic membrane persist until the death of the patient occurs from cathexia marked by anemia.

In *mucous* and *serous membranes,* and in cutaneous surfaces, the same factors lead to the death of a superficial area of tissue, which is readily thrown off as a slough, leaving an inflamed granulating excavation called an *ulcer.*

Types of ulcers.

(1) From loss of lining epithelium only. Such ulcers or superficial erosions result from

catarrhal inflammation, are usually of small dimensions and are completely healed by proliferation of surrounding epithelium.

(2) From simple necrotic inflammation. These ulcers involve varying depths of superficial tissues, are well circumscribed and lined by granulation tissue. They heal with a scar.

(3) From diphtheritic and gangrenous processes. Such ulcers are of considerable depth, usually of large dimensions, and are lined by necrotic tissue or, when healing, by granulation tissue. When advancing irregularly and healing in places, they are called *serpiginous;* when rapidly destroying considerable tissue, *phagedenic.*

Inflammation in bone.

Degeneration.

Degenerative processes affect both the cells and the matrix of the bone.

(1) Bone cells undergo granular and fatty degeneration in caries, osteomalacia and in all forms of osteitis. The importance of these changes is seen in the alteration in the bone matrix which immediately follows the disturbance in the cells.

(2) Bone matrix undergoes two chief alterations, *osteoporosis* and *osteosclerosis.*

Osteoporosis signifies a loss of calcium salts in the matrix and a thinning of the bony trabecula. Removal of the salts is accomplished under the influence of the bone cells, whose nutrition is in some way disturbed, and also by means of special cells, multinucleated osteoclasts. *Osteoporosis* occurs in many forms of inflammation of bone and constitutes the chief lesion in rachitis, osteomalacia and in a specific disease of bone known as *rarefying osteitis.*

Osteosclerosis signifies an increase in the lime salts of bone and a thickening of the bony trabecula, which often leads to obliteration of the lacunae and bone cells and the Haversian canals, so that the bone becomes very dense and ebonized. The deposition of salts probably results from some change in the nutrition of the bone and its cells.

Necrosis.

Necrosis of bone occurs as a result of inflammations of periosteum and marrow, which in other tissues would not lead to death of tissue. This is because the nutrient arteries of bone and the vessels supplied by the periosteum are enclosed in solid walls, within which an exudate rapidly obstructs the circulation. Bone necrosis is therefore a form of anemic necrosis or infarction. Depending upon the vessels occluded, the whole shaft or only the subperiosteal layers may necrose. In the dead bone all the cells become necrotic and the matrix is either ebonized or

eroded by surrounding fluids, especially by pus. The dead mass then acts as a foreign body, and along its edges is excited in the living tissues an exudative inflammation, forming a *line of demarcation*. The necrosed bone is then separated as a sequestrum by a process which includes the following factors.

(1) The absorption of calcium salts from a thin layer of living bone surrounding the sequestrum.

(2) The development, in this layer, of granulation tissue which is capable of exudative changes.

(3) The development of a suppurative inflammation in this zone, which causes further absorption and loosening of the sequestrum.

After removal of the sequestrum large defects in bone may be repaired through the formation of new bone by the periosteum.

Rarefying osteitis.

Essentially a productive inflammation of bone in which there is a growth of new tissue resembling granulation tissue in Haversian canals, and an absorption of bony tissue. The absorption results chiefly from the action of osteoclasts which are found lying in niches, called *Howship's lacunae,* which they excavate in the bone.

Formative osteitis.

A second type of productive inflammation in bone. It occurs in the healing of fractures, in caries and necrosis, and in tuberculosis, syphilitic and other inflammations of bone and periosteum.

When inflammation of any type affects the bone marrow, the process is called *osteomyelitis.*

5 East 57th Street

(*To be continued*)

That Sentimental Dental Journey

By NATHANIEL NATHANSON, B.S., M.A., D.D.S., Brooklyn, N. Y.

When the International Dental Congress assembles at Paris during August, there is a probability that some American dentists will attend. Unquestionably some outstanding American clinicians and essayists will go across, while the remainder of the profession will spend its vacation in the usual manner. Some may be financially incapable of considering such a trip, but those who have some funds left after the recent stock-market clean-up may acknowledge that this event is important enough for them to decide to make that long-delayed Grand Tour. Whether or not an auxiliary reason is added is immaterial; if any one chooses to humor himself into the belief that he is inspired with a passionate desire to deliver a paper or conduct a clinic for the sake of humanity, any justification for so charming a vacation becomes acceptable. Here is a real opportunity for many to escape from the rut into which habit and inertia have forced them and to profit from new contacts, new scenes and new experiences. By the manner in which the tourist agencies are angling for the business of the dental traveler it seems that a few words of advice from a peripatetic dentist may be of service.

After the idea of going has become crystallized and the decision to attend the Congress has been made, a number of questions begin to arise. Should one go alone? Or should the whole family, or at least the wife, be included? It is obvious that the reply to so personal a question depends upon particular circumstances, and unless a man has recently married and wishes to combine a belated honeymoon with scientific pursuit, the matter requires serious consideration. Travel in Europe is too kaleidoscopic, too interesting in important detail, to be ruined by the cares and responsibilities of a family. The blessings of solitude are known to comparatively few people for whom the open road symbolizes freedom, and although no one is isolated from society while traveling abroad, a severance of old ties does create a feeling of liberty. Even some gregarious people do not become nostalgic because they have left their families at home. Of course, where a compromise can be effected and all children, especially the adolescents, can be left behind, then a wife may not be an encumbrance at all. If this is to be a vacation for the tired, hard-working dentist, he ought to have it with as little of his environment foisted upon him as possible. Wives are not objectionable unless they are unwieldy, delicate, punctilious or petulant. If your wife is a broad-minded woman, in good health and of good temperament, take her along; but if she has been a bore, a scold or a shrew, do not hesitate to go alone. The only ones who will miss her will be the dressmakers and the trinket and perfume vendors. It is not a sense of satanism that suggests the possibility of romance, but no door should be closed to it.

Cogitation on wearing apparel is useless. All you need is the minimum of clothes packed into a single grip or hand-bag. A trunk is superflous and a nuisance. Two suits, one on and one off, perhaps (if you must) a tuxedo and an extra pair of shoes, and enough linen to last ten days will suffice. Leave your plus-fours and golf sticks behind, but if you care for mountain-climbing, include an old pair of breeches. A small wardrobe can always be kept clean, since many hotels provide laundry and valet service for their guests. The less encumbered, the lighter you are on the wing.

Let us say that you have never been to Europe, and that you cannot speak a foreign language. If so, you may be doomed to take the beaten path as arranged by the tourist agent, who can prepare a well synchronized itinerary so that while you will not suffer a moment's delay, you will get as much pleasure and profit from the trip as if you had looked over a set of picture postcards or witnessed some screen shots of popular points of interest. A pre-arranged trip that has no means of harmonizing with your whims, likes, desires and idiosyncrasies of the moment is more tiresome than hard labor. You pay well, see the surface and go away deluded that you have worshiped at the shrine of some historical or political event. When you reach a place that interests you, there is no time to lose because you must catch the train that will take you to some place which you must leave at a specified time in order that you may reach another place where a definite reservation has been made for you. Every minute of your time is consumed in worrying as to whether or not you are going to be late for the next railroad appointment and subsequent geographical examination! Instead of relaxation, stimulation and awakened interest you get tense and testy, and, the pattern for speed having been set, you wish to rush through the rest of the trip and get over with it. No wonder that so many tourists wish they had never left home!

Not having been to Europe should not frighten you out of making the voyage on your own initiative. Any one with a wide-awake mind can make his own arrangements here as well as abroad, and the experiences will prove more interesting. While many French and German people understand English when it is spoken clearly, a knowledge of French is an asset that will be readily recognized. If you speak the language of the country you intend to visit, you will learn more about the habits, customs, morals and ideals of the people than if you are a mere onlooker who is being dragged about by a guide-interpreter. Remember that you are the foreigner and, to a certain extent, a curious intruder. To let your curiosity become too obtrusive and obvious is tactless, for there are many people who resent inspection. If you overlook what to you seems to be backwardness, natives might like you and give you a warm welcome. Europeans are not nearly so much concerned with material comforts as we are, so that when you argue the supremacy of American labor-saving devices, you waste your time. Do not try to be too smart and no one will cheat you. It is a rare thing for a European to try to sell foreigners historical monuments, suspension bridges or gold

bricks. They order these things better in this country than elsewhere.

Wherever possible, the small, unpretentious, uncommercialized hotel should be patronized. The owner of the tavern or small hotel may be the chef or manager, and his interest in you is direct. Many a tavern-keeper has been immortalized by some of his appreciative guests. The large hotels will give you an opportunity to meet your own country-people at rates that enable the tourist agencies to earn a fair commission for sending guests to them; the small ones are usually patronized by the natives and charge such reasonable rates that the large ones are put to shame. You can discover from a casual inquiry at the railroad station or in the town what unadvertised place will give you excellent accommodations on very fair terms. If you have made an error, you can always make a change, but you will find that every endeavor will usually be made to make you contented and as comfortable as possible.

If England is the first country to be visited, Plymouth or Southampton is the port of entry. The moment land is struck, things that are different greet the eye. The streets, wagons, cars, bridges, homes, people—all remind you that here is another civilization. Traffic runs to the left and trains are separated into three classes. If you are snobbish enough to travel in the first or second class, you will be disappointed with your contacts or be entirely lonely. To meet interesting people, you should travel third class. On English trains, as well as in the home and the office, tea is served about four or five o'clock. A sharp ear will detect the various dialects mingled among the passengers, and as your train draws through the English countryside, you will be entranced by the quick-changing scenery, the low-thatched roofs, the beautiful gardens and lovely rolling landscapes. On your arrival in London, if that is your stop, the confusion of a big city awakens you to the fact that urban life everywhere is a matter of pace. No police force is so courteous as the English one, and when you need assistance, you will be surprised at the kindness of the English bobby. Should you wish some diversion, his breadth of understanding will serve him to enlighten you where to go. But there is one thing to keep in mind when you are in England, that is, to remain as unobtrusive and refined as possible. The English despise a forward, boisterous boaster, and they will treat him frigidly. If you are given to vaunting American superiority, be prepared for a cool reception. Above all, avoid exaggeration; to the English any humor that has as its basis overstatement is just ridiculous.

With London as a center you can go to Oxford, Cambridge, Stoke Pogis, Stratford, and points beyond—all depending upon your time and tastes. There are so many places to visit that any attempt to list them would require a great deal of space. If a glance at a map will not open up memories or stimulate you with a desire to visit the parts of "merrie England" that interest you, any travel agent has pamphlets that will assist you.

Leaving the British Isles by boat or airplane, one can proceed to Holland in order to visit Amsterdam, the Isle of Marken and Edam. Germany is along the path of a circle tour that

gives opportunity for many enjoyable excursions. No man has seen beauty who has not sailed up the Rhine and passed the Lorelei Rock. You Westerners who think your Rockies are the most majestic mountains among God's wonders, you Californians and Floridians who taunt the rest of America with your terrestrial superiority, you Southerners who boast of hospitality, here is your chance to realize how vain have been your claims, what little about life and beauty you know, and how rich in scenery the real country of God can be! You can have Switzerland, Austria, Italy—all within a short trip of each other. Your trip can be expanded to cover as wide a field as your time and interests will permit. It is impossible to see everything that is worth while in so short a time as most dentists can devote to their trip, so that it might be better to see fewer countries but to see them thoroughly.

Life in all foreign countries is highly interesting, and a hazy preconceived idea can be obtained by reading about them in travel books, talking with the natives and observing carefully what goes on about you. The Baedeker guide is a great help, and if the travel agency is available, you can get free information there any time. The price of transportation is the same at the agent's office as at the office of the carrier, so that the commission earned by the agent does not come from you; hence giving him this business should be fair recompense for the free advice you can get there. By engaging your own hotel room, arranging the details of your sight-seeing (this is very often better done on foot, on tramway or on bicycle) and making your own train schedule you profit considerably. Whatever inconvenience is incurred by this method is more than repaid in experience and economy, not to mention your ability to gratify any wish that might arise. It is the uncertainty and timidity of people that make them go to the tourist agency for a standardized and stereotyped Grand Tour. Even if a train is missed, if blunders are made or accommodations are poor, there is lots of fun if the voyager has a good sense of humor. There are no bandits, gangs nor confidence men to harass you, and there is no telling but that an interesting event may arise to color the trip. With an open and romantic nature, and by getting in tune with European life, you can have a glorious time abroad.

Arriving in France toward the end of the voyage, you will discover what comes as close to Paradise as possible. Like the crescendo of a musical composition or the climax of a play, France rises to great heights of interest. By this time you will have forgotten that your intentions at first were to attend a dental congress, and you will not be too much concerned about the meeting, for you will realize that your whole life has been nothing but a race from one patient's mouth to another, and that a relief from professional care is a blessing. Of course, if you should wish to spend one day at the convention just to see the Grand Palais, you will have something to tell your colleagues; but why give this any more consideration than the hundreds of other things that plead for your attention? Dear Paris, the home of all the world's misfits, geniuses, scoundrels, madcaps, sophisticates, voluptuaries

and sane intellects! Paris, the center of art, of love, of life, of food, of romance, of adventure! Into the confines of your borders the essence of all France is distilled! Here every region is represented, and, like the center of a wheel whose spokes radiate toward the circumference, her influence runs back and forth. What you have missed because of lack of time you can regain here in the concentration. Her cathedrals, museums, boulevards, cabarets, theaters, art quarters, schools, universities, monuments—all await your interest and caprices. For the Epicurean she has bouillabaisse from the Midi, pâté de foie gras and frankfurters from Alsace, snails from Bordeaux and Vendée, fish, oysters and lobsters from Bretagne, cheese from Normandie, and wines from every province. Who has not eaten French truffles, frogs' legs, mushrooms and Isigny cream has not learned the delights of the French culinary art. Every conceivable dish, prepared and served like a masterpiece, awaits your discriminating palate.

If it is pleasure you want, the theaters and cabarets are there. For art you go to Montparnasse, Montmartre, the Latin Quarter, the Louvre, the Luxembourg or to the private gallaries. To relive history, a visit to the Cité, the Place de la Concorde, the gardens of Versailles and the Touraine region will efface the bridge between the present and the past. Trains, subways, tramways, taxis, auto-buses and bicycles will take you everywhere, so that you need not wear yourself out traveling about in the rubber-neck cars. Nothing amuses the French citizen so much as a load of people dumped out of a char-à-banc and dragged through the places of popular interest.

If you enjoy observing people, take a table at a sidewalk café, where you can sit, sip and watch the world go by. If after a resonable stay at one point you fail to recognize a friend, then you are indeed a lonesome person. If you keep your eyes wide open, you will take home memories that will last a long time and make life livable until the next vacation abroad.

The test of a man's ingenuity, romance, spirit of adventure and youthfulness comes now. Here, in this remarkable center of culture, how can you utilize your background? What will all these factors that age and tradition have piled up for the world mean to you? Are you going to take the ensemble and, in a petty way, break it down by ill-natured criticism? Or are you going to accept the fruits of history and leave with a mind stimulated by a new experience?

Any man who takes this witches' sabbatical will come back younger, sprightlier, happier, and filled with a new love of life. All those care-worn lines will disappear from his face; no longer will he snap at patients, nurse or neighbor. Every one will find him a different person, with interesting experiences to color his conversation. With the scope of his experience widened, he will get a broader comprehension of the value of the peaceful arts. As a result of his contacts he should be better fitted to understand foreign affairs and thus, becoming more internationally minded, achieve a more harmonious relationship to the world.

418 East 53rd Street.

Dentistry As I Found It Fifty Years Ago

By WILLIAM HARPER DeFORD, D.D.S., M.D., Des Moines, Iowa

III

Gold Foil

In the year 1880 great interest developed in gold foil, both cohesive and non-cohesive, as a filling material. I recall attending a clinic at the Baltimore College of Dental Surgery when all the clinicians used gold foil. The clinicians on this occasion were chosen because of their prominence as operators, each emphasizing and contending that his method of manipulating gold foil was superior to the technic of the other clinicians. One dentist from Flushing, Long Island, N. Y., used a hand mallet for condensing the gold. Another from Lancaster, Pa., used an electric mallet. The operator from Philadelphia used an engine mallet. One operator living in Baltimore used an "automatic plugger," and another Baltimore clinician used hand pressure entirely. If some of the older dental practitioners should happen to read this article (not too old—just about my age), they will recognize instantly the clinicians mentioned. This clinic started about nine o'clock and was completed about two o'clock. So fatigued and exhausted were the patients that at stated times they were refreshed by sipping whiskey or brandy through a straw.

On another occasion the writer, becoming patriotic, volunteered as a patient and had a mandibular molar filled with non-cohesive gold or "soft foil," but they did not serve refreshments that day. So completely exhausted was I that I did not make my appearance for a period of three days.

There were no inlays, either gold or porcelain, in 1880.

Pyorrhea

The term *pyorrhea* was seen occasionally in the literature of that period, but not very often. Dr. Riggs at Hartford, Conn., was writing extensively and giving clinics, and he was really the first man to take this condition seriously. For many years it went by his name—*Riggs' disease.*

Dr. Riggs also was the first man to extract a tooth under nitrous-oxid anesthesia, Horace Wells being the patient, while Colton, a chemical lecturer, made and administered the anesthetic.

Pyorrhea instruments of that day were certainly crude. Dr. Riggs' own set was in high favor. This set consisted of three instruments, each having a large ebony handle, strong enough for an impacted third molar elevator. No. 1 was beveled on both sides, terminating with a sharp edge. No. 2 was beveled on the right side to a sharp edge and rounded on the left side. No. 3 was beveled on the left side and rounded on the right side. When No. 1 was placed at or below the gum margin of incisors that were heavily encrusted with salivary calculus and was pulled upward, it certainly did business. Fractured pieces of calculus flying up and hitting the roof

of the mouth sometimes bounced down the throat or landed in the patient's lap.

We dentists of the present day have no conception of the dense layers of calculus that were permitted to accumulate between and on all surfaces of the teeth. Toothbrushes were not common and those who used them did so in a very perfunctory manner. If we visit the office of a periodontist today and inspect his equipment of instruments and watch him operate, we can better appreciate the advancement made in this specialty.

Crowns

The first crown I remember seeing was a porcelain crown for anterior teeth of a shape not unlike a Logan crown, except that it had no post. The place where the platinum post was baked in the Logan crown was left vacant, the crown was then ground to fit the root and a hickory pin cemented into the crown and later into the root canal. In time some of the cement would dissolve out, admitting moisture, resulting in swelling of the wooden pin and splitting the root.

An excellent crown was made as follows: The root to be crowned was prepared as desired, then a plate tooth was ground to fit at the gum margin. A platinum pin was inserted into the root long enough to pass up between the pins of the plate tooth. The tooth was then backed up with wax. The waxed-up tooth and pin were slipped from the root and invested in a mixture of asbestos and plaster. The wax was washed or burned out and gold solder flowed on to replace the wax. This made a substantial, artistic crown.

There were no gold crowns nor bridgework in those days.

An Interesting Incident

I should like to relate an incident, just here, although it occurred a little later than the period we are considering. At a meeting of the Ninth International Medical Congress, in Washington, D. C., the dental profession was assigned a section, the first time this was ever done. An effort was made to secure a large attendance, and more than six hundred dentists registered, the largest number that attended any section. The different sections were assigned to different parts of the city for their section work. It happened that the Dental Section was assigned to the Franklin School, on 13th Street, facing Franklin Square. As a boy I had attended school in this building, and our playroom in the basement had been equipped for the dental clinic. I had read about gold crowns and bridgework in our journals, but had never seen either. Much to my delight, there were several clinicians doing practical crown- and bridgework. My attention was especially attracted to two large, fine-looking men from Iowa, and so interesting and instructive were these men that for a period of ten days after the Congress adjourned they were kept busy constructing crowns and bridges for members of the Dental Section. These men were F. M. Shriver of Glenwood and H. W. Shriver of Red Oak, Iowa, brothers. They made an impressive appearance with their white operating coats and black skullcaps, and they were wizards with gold. H. W. was over six feet tall with a full

beard to his waist, F. M. somewhat heavier. Later in life I served with F. M. as a member of the Iowa State Board of Dental Examiners.

In a "hop, skip, jump" kind of a way I have brought to your attention *Dentistry as I Found It Fifty Years Ago,* and I predict that in another half century our theories and methods of practice of 1931 will appear as obsolete as those of 1880 do now.

15 Rawson Block

[COLOR IN PORCELAIN WORK]

It might be said that tooth anatomy and color sense constitute the barrier between the porcelain beginner and success, and not the mechanics of manipulation, as is commonly supposed. All dentists have had instruction in tooth anatomy in college, but color sense is a different matter. The exact appreciation of color is a matter of study and observation and the careful education of the eye to the point where it can detect and be able to distinguish definitely the various tints and hues met with. A beginner should study the color in teeth, bearing in mind that, with few exceptions, he is studying one or more translucent layers of color superimposed one over the other, so that the resulting shade is a combination of colors. This fact that the layers of color are translucent or, in some cases, almost transparent makes the tooth seem of a totally different shade from its real color. This illustrates the necessity for each individual to study and train his eye, for there is no rule nor formula that will educate his eye for him.

—Pilkington.

Ecce Homo!

By A. I. TOBIN, D.D.S., Brooklyn, N. Y.

The working of the human mind, it seems to me, is one of the most baffling manifestations of what we term "life." Our cosmic forces are guided by orderly and harmonious principles to the minutest details, like a well-geared machine, and the slightest deviation of those forces would mean the annihilation of our universe. Yet the mind of man—and ofttimes the most intelligent—not only is a world unto itself, but is guided by reasoning that is sometimes little else than chaotic.

I am minded of this after having read two articles by Dr. Leonard L. McEvoy, one appearing in the February issue of THE DENTAL DIGEST and titled *The Technician versus the Dentist,* and the other, *The Menace of Socialization in Dentistry,* which appeared in the March issue of the Dental Survey. These two articles are as contradictory and entail reasoning of such diversified principles as it is possible to find in any rational being.

In the latter article (*The Menace of Socialization in Dentistry*) Dr. McEvoy discusses Dr. Thaddeus Hyatt's plan of socialized dentistry. He takes up Dr. Hyatt's article point by point and with a keen analytical insight knocks Dr. Hyatt's arguments into a cocked hat.

However, in his former article, it seems as if some malicious imp had suddenly turned off a switch in Dr. McEvoy's mind, and his reasoning actually runs riot—in fact, so much so that it is difficult to believe that one and the same individual wrote these two articles only a few weeks apart.

In his *Technician versus Dentist* Dr. McEvoy urges the licensing of dental mechanics to perform prosthodontic operations in the patient's mouth. He gives as his reasons for this course the facts that in the field of operative dentistry we send practically no work to the laboratory, whereas in the prosthetic field we send most of our mechanical work to the laboratory.

The patient, Dr. McEvoy claims, receives no professional attention in prosthetic cases; in fact, the case is handled entirely by the mechanic from start to finish. He even bewails the fact that "we have laboratory owners who say that the laboratory mechanic should never be permitted to handle patients." Later on he says: "The laboratory man knows that the average dentist would be unable to practice if the laboratories' services were removed."

Dr. McEvoy claims also that he cannot see why laboratories do not obtain legislation permitting them to practice in the patient's mouth. He insists that there are no logical arguments against such action except one—"that the dentist can do such work better than the technician, excepting the dentist who cannot do it at all," whatever that may mean. Dr. McEvoy even insinuates—that is, he not only insinuates but says so definitely—that not allowing the mechanic to practice dentistry is a

"form of deception" on our part, even though he is gracious enough to admit that it is "not actual brigandage." Furthermore, Dr. McEvoy even openly advises mechanics to construct dentures directly for patients as test cases.

Now let us take up these statements and see how much truth there is in them.

Dental mechanics should be licensed to perform prosthodontic operations in the patient's mouth because most of the mechanical work is done by the laboratory man, Dr. McEvoy claims. Reasoning along the same lines, Dr. McEvoy would have every bricklayer, carpenter, plumber and laborer become licensed architects because they do *all* the mechanical work involved in rearing a structure. As a matter of fact, the latter have more reason to become licensed architects than dental mechanics have for becoming prosthodontists, for they do all the mechanical work in the erection of a building, while dental mechanics, even by Dr. McEvoy's own gracious admission, do not do all the mechanical work in the construction of a denture.

I do not know exactly how Dr. McEvoy conducts his practice, but, judging by his article, I should be loath to become a patient of his were I in need of prosthetic work. All he does, he claims, is to take the impression and place the finished product in the patient's mouth. I am afraid Dr. McEvoy has forgotten most of his training in college. That is not the way I was taught to make a prosthetic restoration, and that is not the way I practice prosthesis. I may add also that I am not a specialist, but represent the average general practitioner.

First of all, the preparation of the mouth for the reception of a denture is as important, if not more so, than the construction of the denture itself. And the preparation of the mouth is part and parcel of prosthesis.

When a patient comes into my office for a restoration, I do a number of things before I take an impression. First of all, I plan carefully the type of restoration most suitable for that particular case. That, I dare say, is as important as the architect studying a neighborhood when he is to draw up his plans for the most suitable structure for that particular neighborhood. The planning of the denture is the result of an intensive course of training at college and years of experience of active practice.

After I have decided upon the type of denture to be made, I remove the necessary roots and teeth with a view in mind as to which teeth should be saved and which teeth it would be advantageous to extract in order to enhance the use and esthetic value of the denture. This is another step which I have acquired after much training and experience.

Then I do the extractions, not being satisfied merely to remove the necessary roots and teeth but also making certain that there are no rough or pointed spicules of alveolar processes. I consider this an important step in my denture construction, for, no matter how beautifully the denture will sit upon the stone model, the patient will not wear it with those alveolar spicules pointed toward the soft and vascular gum tissues.

I have seen some Indian mystics who were able to lie with their bare backs

upon a steel-wired apparatus, but somehow our patients refuse to have such contraptions upon their gum tissues. Evidently Dr. McEvoy's clientele consists of a goodly number of those Indian mystics, but I have not been so fortunate.

So, we see, there are other steps in the preparation of a denture besides impression-taking. I may also mention the fact that after I have made all the extractions, I have the patient come regularly to my office every week for several months so that I can observe carefully the healing development of the gum tissue. And ofttimes it becomes necessary for me to remove sharp layers of processes when I realize their interference with the denture.

After all these procedures I am ready for the impression. Here again is a step toward which I have devoted a goodly portion of my college training and practice in mastering. I do not, for the life of me, see wherein the mechanic, no matter how gifted he may be, is better qualified to take an impression than I am with all my training and experience. Evidently Dr. McEvoy is willing to endow all dental mechanics with omnipotent powers, such as few dentists possess. I have met a good many mechanics in my thirteen years of practice, and I can say in all humility that their intellectual and talented powers are by no means greater than dentists'. At least dentists have had some training in their preparation for prosthesis in the patient's mouth. But what qualifications do mechanics possess?

It is a notorious fact that dental mechanics, by the very nature of their work, are unfitted to work in the patient's mouth. I well remember, during my student days at college, some of my classmates who were former laboratory men. They had the greatest difficulty with their operative and prosthetic work when it came to working in their patients' mouths.

First of all, during their apprenticeship as laboratory men they had been led to the belief in certain methods and principles of technic in working for patients which later, during their college days they found out were invariably wrong, and they had to rid themselves of all their erroneous and faulty technic and beliefs. Secondly, they had been so accustomed to work upon models that for years to come their "model psychology" played havoc with their actual practices. In looking into a patient's mouth all they could discern was a model, and they proceeded to work as they had been accustomed upon a lifeless thing. The gentleness of touch and handling of patients as living creatures with sensitive feelings and emotions were utterly foreign to them. In fact, as one of my classmates, a former laboratory man, confided to me later, for years he could not rid himself of the feeling that patients were altogether different from models.

Of course, there are many other steps which the dentist must follow in constructing the denture for the patient—taking of a proper bite, building out the waxes when necessary in order to obtain the maximum esthetic benefits in the situation of the teeth, selecting the proper shade and mould, fitting the "set-ups," which quite often necessitates the resetting of the teeth, and then, after the denture is completed, fitting it properly in the mouth by relieving

the stress here and there and trimming it to avoid undue pressure. And even then the patient, more likely than not, will return a number of times to the dentist to have the denture regulated until it feels comfortable.

Dr. McEvoy's claims, therefore, that the patient receives no professional attention in prosthetic cases, that all the dentist does is to take an impression and place the denture in the mouth, and that the case is handled entirely by the mechanic from start to finish are utterly untrue. I am very much afraid that in his zealous haste to show his sense of fairness to the mechanic Dr. McEvoy has been most unfair to himself and to the profession at large.

There is another angle of Dr. McEvoy's arguments to consider. Suppose we allow the mechanic to take impressions and work for the patient direct. What happens? The mechanic who has hitherto been skilled in, let us say, making vulcanite dentures will soon lose his skill in that direction by devoting his time to doing the work that is necessary in the patient's mouth. Ultimately he will hire another plate-man to take his former place. And then what shall we have? Most likely a strange hybrid, which will resemble neither a dentist nor a mechanic.

"The laboratory man knows that the average dentist would be unable to practice if the laboratories' services were removed," Dr. McEvoy most righteously holds forth. Well, I for one do not think so. This statement the other way around would probably be truer. I think that the average dentist can get along more easily without the laboratories' services than the laboratory without the dentists'. Dr. McEvoy might as well claim that the architect cannot get along without the laborer who digs the foundation for his structure. What of it? Is that any less reason to make an architect out of the laborer than it is to make a dentist out of a mechanic? Really, it is difficult to follow Dr. McEvoy's reasoning.

Besides, why all this worrying about the laboratory man? Why not devote a little thought to the dentist? According to the data which Dr. Clapp accumulated about fifteen years ago, it was estimated that the net income of the average dental practice amounted to about $1500 a year or $30.00 a week. In 1928 Dr. Clapp expressed the opinion that these figures needed no revision.

Think of such a deplorable condition existing among a body of 72,000 highly trained and skilled professional men! And yet we find men of our own profession prating about our practicing a "form of deception" upon the poor and unsuspecting mechanic. For Dr. McEvoy's benefit and information I can let him know that the average mechanic, who has received much less training than the dentist, is far better off financially than the average dentist. There is not a dental mechanic in the country who would think of working for less than $30.00 a week. And his working conditions are far better than the dentist's. He, at least, is through at six p. m., when the average dentist is to be found tied down to his office till nine p. m. and even later.

There is hardly a statement in Dr. McEvoy's article that can bear the light of an analysis. But it would be futile to go any further to show how

wrong he is. The only effect that Dr. McEvoy's article can have is to excuse our illegal practitioners, of which it has been estimated there are about fifteen hundred in New York State alone.

292 Bedford Avenue

[WHAT THE ORTHODONTIST MUST DO]

The duties of the orthodontist are of a threefold nature. One of his considerations is esthetics, and this is in most cases the only one that the patient himself recognizes. He comes to the office to have "his teeth straightened." It is very seldom that he thinks of anything else, though, in some cases, he may have in the back of his mind the idea of improved masticating efficiency as a result of the treatment. This improvement of function is another consideration of the orthodontist, and one that he should be just as anxious to discharge as that relating to improvement of the patient's appearance. The third consideration is one of a preventive nature. With the trend toward preventive measures in modern medicine and dentistry, this phase becomes more important. It includes the orthodontist's responsibility in the prevention of peridental disease.

—NEUSTADT.

CORRESPONDENCE

In Reply to Dr. McLeod's Questions in the December (1930) Issue of The Dental Digest

Editor, THE DENTAL DIGEST:

Naturally the individual dentist is not responsible for the dental condition of parents and their children who do not go to the dentist. However, just to the extent that our profession leaves the general public in ignorance regarding mouth health, just to that extent our profession is responsible. While we are proud of the work now being carried on in Canada and the United States by the dental profession in educating the people on this subject, still there is much left to be done.

If Dr. McLeod had had any experience in dental health publicity work during the past thirty-five years, he would quickly realize that the loss of first permanent molars is not confined to children who *do not* go to the dentist.

Why is it that there is now being carried on an active educational campaign to educate the *dentist* to work for children? Because a large number of parents have reported that their dentists refused to work for their children or they tell the mothers that it is not necessary to fill deciduous teeth.

Please remember I have never said that our members were not capable. It is because I have confidence in their ability that makes it all the more regrettable that this ability is not more frequently applied in saving first permanent molars rather than waiting for the opportunities to make M. O. D. gold inlays, plates, bridges, etc., etc.

If *all* the dentists in the United States were like Dr. McLeod of Canada, there would be a promise of 100% reduction in the mortality of first permanent molars.

I gladly reply to the last question asked. We can reach all the people when our profession through its official organization will seriously undertake to face the mouth health question by realizing that it is a social problem. This mouth health social problem can be met only by a low cost of production. The low cost of production is obtained only by mass production. The mass production in professional service can be given only when one sterilizer, one telephone, one reception room, etc., can be made to serve ten or fifteen operators. When our professional organizations are ready to give this mass production efficiently, then a wide national publicity educational campaign should be started which will reach every city, town and village and every school and college, be they public or private.

(Signed) THADDEUS P. HYATT.

P. S.—The data published in my article of October, 1930, were secured

from persons at least 90% of whom had been going to dentists. At what age they started to go I do not know. We are now endeavoring to secure some data on this phase of the subject.

T. P. H.

Editor, THE DENTAL DIGEST:

Enclosed you will find some x-rays and an extracted tooth. You will note that the x-rays show that the tooth stayed in place ten years without a root —how much longer I do not know. I thought possibly this might prove interesting to your readers.

C. M. COLE, D.D.S.

Fig. 1
Taken May 22, 1920

Fig. 2
Taken October 23, 1930

Fig. 3
The extracted tooth

DIGESTS

RADIATION THERAPY IN CANCER OF THE MOUTH

By G. E. Pfahler, M.D., Sc.D., and J. H. Vastine, M.D.

The authors advocate the use of pure gamma radiation and claim that it is painless when applied, but that it causes soreness and swelling at the height of its effect. Its use requires neither hospitalization nor an anesthetic, and there is no mutilation. As a rule there are no constitutional symptoms, and the skin effects are negligible. When cancer affects the tongue, the function of this organ is preserved. Usually, metastatic lymph nodes disappear, but when they are slow in doing this, the radium needles are inserted in the lymph nodes, and if the glands break down, they are removed surgically.

On the other hand, the treatment is very expensive and interferes with the occupation of the patient for at least a month. It requires the constant and daily supervision of an experienced radiologist, and the constant cooperation of the patient is necessary. Great care must be taken against personal exposure, since large amounts of radium must be used.

In association with the radium treatment the use of tobacco is prohibited and all diseased teeth are removed as soon as sufficient radiation has been given to devitalize the cancer cells. The mouth must be cleansed and kept clean, and a blood count should be taken from time to time. A microscopic diagnosis for cancer and a Wassermann test are essential. The biopsy should be preceded or immediately followed by irradiation. —*The Journal of the American Medical Association,* Feb. 28, 1931.

FRACTURES OF THE JAWS

By D. E. Woodard, M.S.D.

The chief factor governing the healing time of a fracture is whether or not infection is present. Other factors, such as the type of fracture, the age of the patient, syphilis, delay in reduction, are important only in so far as they may predispose to infection. Compound fractures are more liable to infection than simple fractures, and when the delay in reduction is more than 200 hours, the predisposition to infection is great. Poor union and unsatisfactory anatomic and functional results are due chiefly to infection.

Following a fracture the blood shows a rise in phosphorus content, and the administration of calcium lactate seems to have a detrimental effect on the phosphorus content, though when it is given with cod-liver oil and quartz-light irradiation, the effect is not so marked.

In jaw fractures there is an immediate rise in the white blood count, due to tissue injury, but in severely infected cases in the later stages of healing the white blood count is relatively low. In

non-infected cases, in the later stages of healing, the white blood count is relatively high, showing a defensive reaction.—*The Journal of the American Dental Association,* March, 1931.

REACTION OF CEMENTUM TO INJURY AND INFECTION

By Edgar D. Coolidge, B.S., D.D.S., M.S.

Areas of resorption in cementum caused by trauma often show repair. There may be a covering of new layers of cementum with the development of new periodontal fibers and the establishment of a functional connection between the cementum and the alveolar bone. Cracks in the dentin are sometimes filled with connective tissue, which lays down new cementum.

When a live pulp is removed, there are small areas of resorption on the surfaces of the roots and canal walls, where there are remnants of live uninfected pulp tissue. These areas are repaired with new deposits of cementum, which gradually replace the pulp in the main and accessory canals. Injury and resorption on pulpless teeth are corrected in the same manner and almost as successfully as on teeth containing vital pulps.

During acute inflammatory reactions the periodontal tissues suffer a certain amount of destruction. When the inflammation subsides, the tissue on the outer border is stimulated to activity. New layers of cementum are deposited on the surface of the old cementum, extending along the surface of the exposed dentin. This process may be prevented by the proliferation of epithelium along the surface of the root. In such cases a cementum hyperplasia is found at the outer border, which limits the progress of the epithelium.—*The Journal of the American Dental Association,* March, 1931.

A CASE OF EMPHYSEMA

By J. Clarence Salvas, D.D.S.

While drying the canal of a maxillary central incisor preparatory to closing the apical end, the compressed air unit was used. The upper right eyelid bulged out to the size of a large walnut. The lower lid and the cheek then began to swell.

Ice-packs were placed over the eye and the right side of the face, and in half an hour the puffiness began to disappear, the greatest reduction being in the upper eyelid. The lower lid was slightly swollen and very red. Air could be felt in the tissues. Warm packs were applied and the patient finally dismissed.

On the third day conditions had returned almost to normal, though air could still be felt, and it was nearly two weeks before the case was entirely cleared up. The air pressure used had been one-half a pound. The opening of the canal was just the size to receive the point of the syringe and consequently there was very little escape of air at the entrance to the canal, which probably accounted for the occurrence.—*The Dental Cosmos,* March, 1931.

HYPERCEMENTOSIS

By JAMES L. ZEMSKY, D.D.S.

This is a preliminary report of work undertaken by the author in the Histological Research Laboratory, School of Dental and Oral Surgery, Columbia University, and is based on a study of five cases.

Hypercementosis is associated with both healthy and diseased teeth, and the opinion that it is purely a pathological condition should be abandoned. The cause has not yet been discovered. The condition has been found on unerupted, impacted and malposed teeth which presented no pathological signs, and consequently it cannot be due to infection.—*The Journal of Dental Research,* February, 1931.

Foreign Dental Literature

Edited by JOHN JACOB POSNER, LL.B., D.D.S., New York, N. Y.

THE EFFECT OF TOBACCO ON THE TEETH AND TISSUES OF THE MOUTH

By E. M. JOSEPSON, M.D.

The greatest part of cured tobacco leaf consists of cellulose and water. In smaller amounts are various proteins, alkaloids, carbohydrates, mineral matter and organic and inorganic substances. Essentially tobacco is impure wood paper. The maximum of nicotin is found in pipe smoke, the least in cigaret smoke. However, nicotin is not the most dangerous substance found in the smoke, since C_2O, cyanogen and prussic acid, the aldehydes and furfurol, wood alcohol, etc., are also present and are more toxic. While it has been shown that tobacco smoke has an antiseptic action in vitro, yet this action is not present in vivo.

The irritating and drying effect of the hot smoke is very harmful, causing thickening of the mucosa of the tongue, a shrinking of the gums and changes in the lips. It also exerts an inhibitory action on the salivary glands.

The least injurious effect is the discoloration of the teeth by the deposition of the tars and other coloring matters. With the shrinkage of the gums the more vulnerable parts of the teeth are exposed and erosions frequently develop. The nutrition of the gums and teeth is impaired and disease processes are favored. In the case of the pipe-smoker this is hastened by the loosening of the teeth, due to the pressure of the pipe-stem upon them.

The irritating effects of the heat and the chemical substances are factors in the higher incidence of carcinoma of the lips and mouth among smokers and are also a cause for the widespread prevalence of Vincent's infection.

The cigar is most harmful to the general health, while the cigaret is the least damaging. The chief danger in the latter is the liability of excessive usage.

Tobacco-smoking is not a healthful habit, and the effects are first seen in

the tissues of the mouth. The advertising policies of certain tobacco companies are deplorable, for they will harm not only the public health but also the interests of the tobacco industry.—*The South African Dental Journal,* February, 1931.

TOOTH EXTRACTION AND FOCAL INFECTION

By Otto Loos and Hermann Gross, Frankfort-on-Main, Germany

In surgery of the mouth there are certain rules of procedure which apply to all operations, in addition to those particular ones for the case in hand. Often the difficulty lies in a determination of just what should be done rather than in the operative procedure itself. This is true in cases of focal infection when a tooth is to be extracted because of its relation to the health of the patient.

The acute inflammatory types of infection about the teeth are not considered in discussing focal infection, as these cases are cleared up by extraction. It is the chronic case that leads to focal infection. All people who have teeth with granulomata are not necessarily sick. Some are susceptible, while others appear immune.

It is a difficult matter to show the direct connection between the removal of infected teeth and the improvement in the patient's heart or kidney condition, especially where the tonsils are removed at the same time and medical treatment and diet given.

There are really two important problems confronting the dental profession in regard to devitalized teeth: (1) what should be done with teeth which show no change about the apex; (2) what should be done about infection through inflammatory processes about the margin of the gums, as in pyorrheal conditions.

There is a vast difference in granulomata. Even in the same patient, bacteria may be cultured from one tooth and different bacteria from another. Rosenow says that teeth which are radiographically negative may be more dangerous to the patient than those which show bone changes. He has found non-vital teeth which show no x-ray changes to have been the source of grave disease. In the root canals of teeth with no periapical disturbances have been found virulent streptococci. The apical condition is not a fixed one. A harmless focus may become active and assume disturbing characteristics.

Focal infection through the gum margin under certain circumstances may prove more severe in character than that which is found at the tooth apex. The usual pyorrheal condition is not the cause of focal infection. The exudate from the free margin of the gum can discharge directly into the mouth. In certain forms of deep-seated infection about the gums, shut off from the mouth, focal infection may ensue.

Therapeutic indication in the conservative treatment of pulpless teeth is still uncertain. Recently diathermy has been used in the preparation and sterilization of root canals. The effect is still indefinite. Rosenow is still opposed to conservative treatment of the pulpless tooth. He says that the examination of such teeth has produced

cultures of streptococci which, when injected into animals, could reproduce the illness of the patient. This was true despite the fact that various methods were employed in the careful filling of the root canals. It is hoped that a method will be found whereby root canals may be sterilized, infection destroyed and recurrence of infection prevented. Until such time it is certainly more beneficial to the patient if teeth with affected pulps are extracted rather than allowed to remain as a potential source of trouble. There is no question, says Rosenow, that all sick people with an unknown focal cause should have all non-vital teeth removed.

Siegmund states that extraction is not the only way of handling devitalized teeth. He believes, however, that the results of filling root canals as evidenced by the x-ray give plentiful evidence that little success has been achieved. He does feel that root amputation with the surgical cleansing of the apical space will give better results than ordinary root-canal filling and treatment. In clinics where large numbers of people are treated, extraction of teeth with exposed pulps is the best procedure. The patient is far better off with the tooth out than with the tooth still in place with a hastily treated root canal and root filling. In concluding this portion of his article the author is in favor of extraction of the pulpless tooth or perhaps the saving of some of them through root amputation.

The radiograph as part of the dentist's equipment in the intelligent pursuit of his work is unquestioned. More recently the radiograph has become so usual and matter of course that failure to use it often places the dentist on the defense when brought into the law court for malpractice. A case is cited in which a dentist extracted a tooth. There was a discharge of straw-colored liquid. A fistula also was present. Nevertheless a bridge was thereupon completed and placed in position. Subsequently, in an action brought against the dentist, it was held that the circumstances were sufficient to have placed him on his guard, and that a radiograph should have been made. There was no question as to the fee, as the patient could have afforded to pay for the radiograph.

An important point to be considered is whether the treatment and diagnosis would have been different if an x-ray had been taken. If there is some good reason why this was not done, or if the patient would not pay for a radiograph, then the dentist is absolved from complaint.

A case is reported of a girl who came to the clinic with trismus, edema of the cheek and submaxillary swelling. Examination of the mouth placed the blame on an erupting third molar. A piece of soft tissue was removed from over this tooth, but the symptoms became increasingly alarming. A radiograph was then taken and it was clearly seen that a granuloma was present at the apex of the first molar. When this tooth was extracted, all symptoms disappeared. Here is a case which showed definitely the diagnostic value of the radiograph.—*Fortschritte der Zahnheilkunde,* February, 1931.

THE STRUGGLE AGAINST ORAL SEPSIS

By Hugo Trebitsch, Vienna, Austria

Despite the most careful work of the operator, it is a difficult thing to fill root canals properly and escape bacterial infection. The surgical removal of the apex and eradication of periapical areas of infection are the best means of establishing surgical asepsis. There is of course the danger of recurrence, and then again all teeth are not susceptible to this treatment.

Countless instruments and drugs have been suggested and devised for cleansing and sterilizing canals. Instruments cannot reach the apices of the roots, and drugs which pass beyond them are frequently irritating. Filling the canals with guttapercha points and cement often leaves hollow spaces where fluids may accumulate and bacteria propagate.

The requirements for a good root filling are:

(1) Complete cleansing and sterilization of the canals.

(2) Solid filling of the canals with an unchanging non-irritating and bacteria-destroying material.

(3) Possibility of the beneficial influence of the root-filling material in the tissue about the root.

Cleansing the canal in the customary manner, the disinfection of the canal through the high-frequency current, and the filling of the canal with a silver powder and silver points seem to fulfil all these requirements. It is also possible to use the high-frequency current in teeth after the canal has been filled because the silver is a good conductor—all this without removing the root filling. Such treatment of the filled tooth produces an arterial hyperemia about the root-end, which has a healing influence.

The silver canal points have the property of destroying bacteria. This is called the *oligodynamic power*. Cement is mixed with powdered silver until it has the consistency of honey. The silver point is passed into the mix and carried into the canal. This is repeated several times until the canal is filled. Finally the silver point is left in position, where it is firmly fixed. In those cases where the infective process has penetrated the periapical bone the silver point is pushed through the apex as far as possible in order to permit it to exercise its germicidal properties. It causes no reaction, and there is a complete absence of pain.

In his experiments the author inoculated petrie dishes of agar agar with coli bacteria. In all cases the agar swarmed with bacteria except in the region close to the silver points, which had been placed in the dish. This showed that the silver has the power definitely to destroy and inhibit the formation of bacteria. Further experiments showed that other forms of infection, such as the bacillus typhus, paratyphus, pneumococcus, streptococcus and staphylococcus, are equally destroyed through the action of silver.

Summary

(1) A silver wire point, similar to a guttapercha point, used in filling root canals has a bactericidal action which is entirely lacking in the guttapercha.

(2) There is a difference in the germicidal action of various silver points.

(3) Gold and platinum do not exhibit the slightest bactericidal action.

(4) A cast silver filling and a silver crown both show germicidal power.

(5) Cement mixed with silver powder is bactericidal, while plain cement is powerless.

(6) If a guttapercha point and a silver point are dropped into a dish containing bacteria, the bacteria will grow about the guttapercha but will not do so about the silver point.

(7) Silver powder mixed with cement can be carried into root canals and should have the consistency of honey.

(8) The silver point should be held in a pair of college pliers and pushed back and forth into the canal.

(9) The roots of a third molar can be filled to the end by means of silver wire points.

(10) Points of silver pushed through the apex show no harmful effects.

(11) A radiograph of a central incisor with silver point protruding through the apex shows a nice healing.

(12) Placing the silver point in hydrogen peroxid for several minutes before the insertion into the canal increases greatly its germ-destroying power.

(13) There is an increase in the bactericidal action of silver if a high-frequency current is passed through it. —*Korrespondenzblatt für Zahnärzte*, February, 1931.

AFTER-PAIN FOLLOWING TOOTH EXTRACTION

By PROF. WOLFGANG PRAGER, Tübingen, Germany

The author states that large operations, such as root amputations, cysts, chiseling out of impacted canines, etc., seldom cause as much after-pain as the extraction of a tooth. The extraction of a tooth may lead to a troublesome wound, with considerable pain as a result. After a forcible extraction it is the usual procedure to prepare the patient against the after-pain which is to follow. A certain amount of pain is to be expected. The patient certainly would not complain if the same size of wound existed in the arm or leg.

Personal reaction is a great factor and may change at various times in the same patient. Some patients will permit extractions without an anesthetic, and others after several injections with positive anesthesia will continue to give painful reactions during extraction.

The most frequent cause of after-pain is infection of the socket, especially of the blood clot. The picture which follows is typical. The socket is evil-smelling, the tongue is coated, and there is inflammation of the mucous membrane, periosteum and bone in and about the wound. Swelling and tenderness to pressure of the adjacent lymphatics are present. The socket is filled with a broken-down necrotic blood clot. The invading bacteria not only infect the upper surface of the alveolus but also work their way down into the bottom of the socket and destroy the blood clot.

After the tissue is broken down, pus-producing organisms enter. Jazab found in thirty cases so examined that there were nineteen with streptococcus hemolyticus, staphylococcus in six and pneumococcus in one. The danger of breaking down of the blood clot increases with the size of the wound, and

if the mouth is not kept scrupulously clean.

Patients with diabetes or lues or anemia and those suffering from arteriosclerosis and vaso-motor disturbances are more susceptible to such infections. This infection is much more severe if the tooth is removed during an active stomatitis.

A special form of infection shows itself in the typical dry socket. The alveolar walls are gray and lifeless. They are not really dry, but the walls are thinly covered with a dirty-colored exudate. One of the frequent causes of this condition is excess suprarenin in the novocain. The socket is left without its blood clot, and the alveolar walls become susceptible to the invasion of bacteria.

Even good-appearing wounds can remain painful for a long time if there has been much injury during extraction, and if the bone has been squeezed or burnished. If an elevator has been pressed too strongly against an adjacent tooth, its peridental membrane may be squeezed or injured, thereby accounting for after-pain.

The author quotes a case in which two mandibular bicuspids were removed in an elderly woman. The infection was deep-seated, the osteitis carried the pain to the mandibular canal, and it was weeks before the patient was again free from pain. Severe pain may also follow the healing of the mucous membrane over a sharp edge of process.

The best thing for a socket after extraction is, of course, a blood clot. The dressing of every extraction wound is unnecessary.

It is doubtful if the infected socket can be improved through additional surgery. It is only in those cases where pain is due to sharp bone beneath the mucosa that surgery is of benefit. As an irrigating solution the author uses 3% hydrogen peroxid. The entire mouth is carefully cleaned. Moral prefers a loose piece of iodoform gauze dipped in chlor-phenol-camphor. This helps to clear up ill-smelling sockets. Light therapy as a treatment for after-pain in sockets is remarkably good. Warm applications also are helpful.—*Zahnärztliche Rundschau,* February, 1931.

DENTAL ECONOMICS

The Economic Significance of Oral Disease to Its Victims*

By GEORGE WOOD CLAPP, D.D.S., New York, N. Y.

We have seen from previous articles that we do not know how many children or adults need us or just how great is their need, and that we cannot agree among ourselves as to what causes caries and pyorrhea. Perhaps we may be more successful in another field of investigation, and I suggest therefore that we inquire as to the significance of oral disease to any of its 90,000,000 or more victims.

By the time we have tried to think about this for a while we shall find the subject so big that we shall have to divide the victims into at least three groups: (1) children, meaning those under 14 years of age; (2) youths, meaning those between 14 and 25 years of age; and (3) adults, those 25 or more years of age.

And then we shall find that there are at least two kinds of significance, closely interwoven, to be sure, and not to be separated except as we do it arbitrarily now for purposes of study. They are economic significance and health significance. We shall have to be very careful to observe this rather arbitrary and artificial distinction we are making or we shall be constantly getting over into the wrong field. And that would blur our vision.

Anything is economic which affects one's physical, mental or moral welfare. Of course nothing else is more soundly economic than health, which affects all of them. But because there is plenty for us to study as to the significance of oral disease under at least two headings, let us separate those effects of oral disease on the ability to make acquaintances, win friends, live socially and get ahead in the world from the effects of oral disease on our bodies and call these first-mentioned effects *economic*. We shall study health significance later.

Some Effects of Oral Disease Upon Money Earning Power

The economic effects of oral disease upon the child may begin very early in life. Next to health we cherish education for the child, usually in the public school system at first. Anything which is likely to retard the child's progress through the elementary grades, as oral disease may very well do, may shorten his school experience. He may have to leave school and become one of the family's breadwinners before he has had enough schooling to enable him to do the best of which he should be capable.

* This is the fifth of a series of related articles. The first appeared in the January issue.

The more he has been retarded, the less schooling he will get. His value as a breadwinner throughout life is likely to be greatly affected by the amount of his schooling. The boy who completes high school will, on the average, earn $24,000 more between the ages of 18 and 60 years than will the boy who leaves school at the end of the eighth grade.

In cities like Atlanta, Georgia, where an intensive and comprehensive health campaign is carried on in the schools, including a dental-health campaign that is practically 100% efficient, no child's educational experience is limited through retardation caused by oral disease, and the average progress of children through the grades is probably at about normal speed.

But in Cities of Neglect, where no such health campaign is waged or the campaign does not include oral health or it is not driven by some apostle of health who is willing to make himself unpopular with vested interests by strict enforcement, a very different story can be told. In such Cities of Neglect something like 90% of the school children are likely to suffer one or more forms of oral disease to a degree which may cause a lifelong handicap.

The limitation of school experience may occur as the result of frequent absence from school. Teachers cannot teach absent children, and, while absent children may learn many lessons, they are not usually those of the classroom. As causes of absence from school, in the lower grades, the common "cold" ranks first and some form of oral disease second, especially during the winter months. Absences from this cause are reduced almost directly in proportion to the vigor and effectiveness of the dental-health campaign carried on in the schools. And because every absence is a blow at the economic welfare of the child, so everything that prevents absence is a stroke in the upbuilding of the child's economic welfare.

Bad Teeth as Irritants

Some educators go farther than we have just gone. They say that the physically well child is more amenable to friendly interest on the part of a teacher, is capable of more undivided attention in class and will get more out of what is done for him or what he does for himself than the child whose attention is partly diverted by physical irritants such as bad teeth may easily be. If that is true, the dentally well child is likely to get a greater quantity of educational experience and to absorb a better quality than the child not orally well.

Two other effects less readily visible are economically important. Some children become more or less disfigured as the result of oral disease. It may take the form of the loss of the front teeth or badly decayed teeth or unpleasantly irregular teeth or an unclean mouth or a bad breath. Children thus afflicted do not like their own looks, and other children do not like to look at them. They become "ugly ducklings," and conscientious teachers agree that a rare quality of mental balance is required to enable the teacher to treat the ugly duckling, in all respects, as the good-looking duckling is treated.

The Inferiority Complex and Mental Antagonism

The consciousness of difference and mental inferiority breeds mental antagonism on the part of the ugly duckling, which sometimes becomes all-inclusive. This may go on until he asserts himself in rebellion against the accepted order of things, not so much because he wants to rebel or hates everybody but because he feels the need to retain or regain his own self-respect and call attention to himself by self-assertion in some outstanding way.

Those of us who had a part in Dr. Ebersole's now classic work in the Cleveland schools twenty years ago became familiar with this spirit of resentment and saw how it could be cured.

The children chosen for Dr. Ebersole's demonstration class because their oral conditions were very bad were the "toughest nuts" in the school. They were in constant latent and frequent open rebellion, thorns in the flesh of every teacher under whom they were placed. In the words of one enraged teacher, "they gave excellent demonstrations of indwelling original sin." They were from two to four grades behind their proper places in the school system, were unable or unwilling to make up the retardation and were content in their backwardness and deviltry.

With the improvement of the oral conditions this attitude corrected itself. Nothing special was done about it. There were no new lectures on goodness —everything that could be said had long since been exhausted. Rebellion disappeared. They began to make up their grades. Some of them became so distinctly and honorably helpful that they were placed in charge of certain activities of groups of other children.

Judge Lindsey's Comment

This supports a comment which Judge Lindsey made when I told him what we were doing in Cleveland. He said, "You will find that many so-called incorrigible children are not incorrigible at all, and I believe your experience in Cleveland will be that from 25% to 40% of unruly children will be found to be suffering from nasal or dental irritants, and that they will become docile enough when those irritants are removed."

We may conclude this very brief survey of the economic significance of oral disease in children by the conclusion that oral disease may begin early in the child's life and usually does, that it may and often does reduce the child's physical and mental preparation for satisfactory earnings in adult life, that it may and sometimes does make the child unsocial and predisposes others against him, and that it may have an important part in setting the child against the established order of things necessary in a community and to which, for the good of all, all must be subject.

Economic Effect on the Community

We might turn aside and note very briefly the effect on the community of the sum of these influences on the lives of its tiny citizens.

The care of the cost of the teeth of the children in the schools may be made to cost the community a large sum of money annually or a small sum. It all depends on how those in charge go

about it. Some years ago, when I heard Prof. Sutton tell what it then cost the city of Atlanta (about $7,500 annually, if I remember rightly), the appropriation struck me as almost microscopic in comparison with what it was made to do. He is on record as saying that in his opinion the health campaign waged in the schools of that city, which I think of as the City of Child Health, saves the city something like a quarter of a million dollars a year. Not so bad for a campaign in which, I believe, the teeth were the starting-point! Well, he looked at economy through the right end of the telescope.

The amount of self-deception by communities on this subject is enormous and no one has so far been able to awaken many of them. An automobile manufacturer recently came out with an ad for his car which said in effect, "You pay for my car whether or not you enjoy its luxury and efficiency. If you're going to pay for it, why not have it?" So a community pays for dental health for its children whether it has it or not. If it has that health, under the guidance of wise and vigorous and fearless directors, it will get it cheaply and constructively. If it hasn't it, it will pay much more and get fewer benefits, but the payments can be hidden under the usual headings, and the directors may lull themselves to sleep in the public approval of their economy.

Let me give an instance which occurred while this was being written. In a certain City of Neglect, where the dental-health campaign is verbally prominent and efficient but where it actually functions at what I consider about a 10% level, the principal of one of the schools was asked whether he could not get along with two primary teachers instead of three, in order to assist in reducing expenditures. He said in effect: "This school should not require more than two primary teachers, but it is taking the entire time of a third to bring children who are absent from school because of physical ills up to the class levels, so that they can go on with the classes." The principal thinks that if the school health campaign were as effective as it is verbally prominent, two primary teachers would be enough. Similar conditions probably exist in other schools in that city.

The Economic Effects on Youth

Let us now look at the economic effects of oral disease on youth, that is, on those between the ages of 14 and 25 years.

In Cities of Neglect the consequences of the oral disease of childhood may become readily visible by the time the boy or girl reaches high school. In well-to-do families some of these consequences will probably have been partly corrected by the family dentist, but some of them, especially maxillary deformities, may be impossible of correction in spite of all efforts.

In the mouths of many children the ravages of caries will progress unhindered. The habit of lunching at counters on cake, pie, ice-cream, candy and coffee lays the foundation for steadily increasing trouble. In one group of 178 boys it was estimated that 6,000 hours would be required to repair the visible evidences of disease. That is the average working time of one fairly busy dentist for six years. In another group of 150 mouths examined by Dr.

Paul R. Stillman in a high school in an aristocratic section of New York, only four mouths were free from definite signs of periodontal trouble.

For those whose mouths are deformed or unpleasing the consciousness of difference from their fellows and of personal or social inferiority becomes more acute and may lead to more active rebellion against authority.

Facial Appearance and the Good Job

The direct economic consequences become more apparent during these years in the lives of those who seek to enter the business world on some level above that of manual labor or a trade. Perhaps no one cares whether or not the plumber has good teeth and a sweet breath, but the young man or woman looking forward to a professional or business career must care about himself. Not that only—the employer of the young man or woman must care a great deal. It is theoretically unfair to discriminate against those of unpleasing appearance, but it is unavoidable. Some of us who have big and busy offices, where the tension of work is high all day long, do not want repellant faces about when there are just as smart and ambitious people who are pleasant to look at.

While this article was being prepared, our house was visited by one of the smartest young woman merchandisers in the United States. She tells me that employers cannot afford to hire ugly ducklings as sales people. Business is won by so small a margin and held so largely by personality and the appeal personality makes that the appearance of the sales person is very important.

Dentists are no exception to the rule. You will find practically all dental office assistants very presentable. The dentist may have ideas of beauty which differ from yours or mine, but you may accept it as proved that the lady appears well in his eyes.

And so the uncorrected oral disease of childhood may erect a serious obstacle across the business pathway of the young man or woman who is just setting out on the path of achievement. There can be little doubt that in a pathetically large number of cases it turns progress along that pathway away from success and into mediocrity.

The Economic Effects in Adult Life

The economic effects in adult life will vary with the extent of the oral disease and the form of its manifestation. They may be slight or tragic.

Among intelligent people who avail themselves of dental service and maintain good home care of the mouth the most distressing cases are those where the natural teeth have wandered out of position in such way as to make the mouth repellant in either repose or speech. Not infrequently some very capable business person loses a desirable position, the fruit of years of intelligent effort, because of an appearance ruined by the migration of front teeth to new and distressing positions.

One woman of rare courage, a housewife and mother, the victim of this deformity, carried the situation off with a high hand. She laughingly says that when she looks in the mirror she always shuts one eye because she cannot stand

it to look at such a face with both eyes. To her intimates she says she does not dare to let herself think about it or she would commit suicide. To a friend who asked why she did not have her teeth out and artificial teeth instead, she said: "Don't you think I would if it would do any good? I'd have my head taken off piecemeal if it would help. But with my narrow upper arch and the great protrusion in front, the dentists say they can do nothing."

It must take great courage not to let one's self think or falter in the face of a lifelong deformity. Few who have this deformity have that much courage. Most of them become more and more sensitive and finally morbid, withdraw more and more from social and business contacts, live lonely lives, and some commit suicide.

In Conclusion

We may summarize our study by saying that at least 90,000,000 people within the confines of the United States have some form and degree of oral disease, that it may and frequently does become economically serious in childhood, that the seriousness increases in youth and adult life, and that while there is no measure in dollars and cents of the loss that must be entailed on millions of lives in the form of physical suffering, thwarted business and professional aspirations and social mortification, it is enormous and ought never to be permitted to occur.

(To be continued)

PRACTICAL HINTS

THIS DEPARTMENT IS NOW BEING CONDUCTED FROM THE OFFICE OF THE DENTAL DIGEST. TO AVOID UNNECESSARY DELAYS, HINTS, QUESTIONS AND ANSWERS SHOULD BE ADDRESSED TO EDITOR PRACTICAL HINTS, THE DENTAL DIGEST, 220 WEST 42D STREET, NEW YORK, N. Y.

NOTE—Mention of proprietary articles by name in the text pages of THE DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule.

Editor, Practical Hints:

I have a patient in whom I injected novocain in the superior maxillary division of the fifth nerve for cavity preparation of the first and second molars. A swelling the size of an egg took place immediately and now, after three days, it is somewhat smaller but light blue in color. What happened, and what is the remedy?

E. W. G.

ANSWER.—The needle punctured a small blood-vessel, and the escaping blood caused the swelling and discoloration. The technical term for it is *ecchymosis.*

Nothing can be done for this condition, and it gradually disappears as the blood is absorbed. While it may be uncomfortable, there are no serious after-effects. It is by no means an uncommon occurrence.

Editor, Practical Hints:

I wish you would kindly explain the difference between a dental abscess, an alveolar abscess and a periapical abscess.

C. R. T.

ANSWER. — This classification of abscesses is a mystery to us. Anthony's dictionary gives an alveolar abscess and a periapical abscess as the same thing. No mention is made of a dental abscess. Mead, in his comprehensive book, makes no such distinction.

Consequently we regret to say that we are unable to help you, but we should be very glad to learn from you just what is meant, provided that you can secure this information.

Editor, Practical Hints:

Please tell me about the use and preparation of a reducing solution for x-ray films. I understand that it improves the film, making it clearer.

The formula I have in mind consists of an aqueous solution of hyposulphite of soda and an aqueous solution of potassium ferrocyanide.

I have tried the mixture, but am getting no results. Please advise.

F. C. M.

ANSWER.—For a full account of the use and technic of reduction we would refer you to *The Technic of Oral Radiography,* by Clarence O. Simp-

son, published in 1928 by C. V. Mosby Co., St. Louis, Mo.

Briefly, the variation in thickness and radiability of a given area is generally so great as to make diagnosis difficult. Reduction is used to lower the density of the negative where the radiographic action has been excessive.

The technic is a little complicated and requires the mixture of two solutions, one of the ingredients of which is highly poisonous. In addition to this you will find that the book contains many valuable hints, and we believe that you cannot help but profit by reading it.

Editor, Practical Hints:

I am treating the left central of a young girl, aged 11, which was broken in an accident.

Due to exposure I had to remove the pulp. The apex of the tooth is not fully formed.

What would you suggest in filling the root of this tooth?

J. S. B.

ANSWER.—The root canal should be filled in the usual manner, but care should be taken not to force the material through the end of the root. In all probability the treatment will be successful.

Editor, Practical Hints:

About two months ago I opened up the left bicuspid region for a patient and removed a cyst. There had been a profuse discharge of pus for some time. The radiograph showed a considerable rarefied area, and a mass of foul-smelling diseased tissue was removed, leaving an opening as large as a No. 2 cotton roll and 1½ inches long.

One end of the wound was sewed up, leaving an opening as large as a lead-pencil. The cavity was packed with iodoform gauze, which was changed daily and the cavity washed out with a chlorin solution.

After the first week the dressing was changed on alternate days and lately only twice a week. It looks all right and there is no discharge, but the cavity is slow in filling up. I am not using nearly so large a plug of the gauze as formerly. It is filling up some, but very slowly. What can I do to hasten matters?

The patient is a young man about 35 and is in good health. It has never caused him the slightest inconvenience, except some pain the first twenty-four hours after the operation. There is a big cuspid tooth adjoining that I want to extract, but I am afraid to do so because of the weakness of the bony tissues in the vicinity.

I want to take out all the teeth as soon as it can safely be done and make a plate. Have you any suggestions?

F. H. W.

ANSWER.—There is nothing that we know of that will hasten healing, provided that there is no infection and all sources of irritation have been removed. A good deal depends on the natural resistance of the patient.

It would probably be inadvisable to extract the cuspid until conditions have returned to normal, since the operation might lower still further the resistance of the tissues.

Editor, Practical Hints:

Recently I was confronted with the following problem:

A woman, aged 55, has been wearing full upper and lower dentures for the past six years. She now feels a burning sensation in the lips and tongue.

The upper denture has the six anteriors butted to the gum, since the anterior ridge is of the protruding type.

I noticed that the bite measures only 16 mm. and therefore I believe the bite may be opened.

Can you tell me the cause of this burning sensation in the lips?

Will the case be benefited by constructing new dentures?

B. M.

ANSWER.—Burning sensation in connection with the wearing of dentures has never been satisfactorily answered. Some of the theories are: idiosyncrasy to vulcanite, roughness of vulcanite, residual areas of infection, pressure on nerve endings due to resorption, certain systemic diseases such as diabetes, anemia, etc.

All of these have been proved to be causative factors, but whether or not any one of them applies to the case you mention, it is impossible to say. It would be very unwise to predict that the construction of new dentures would be of any benefit.

Editor, Practical Hints:

Please give me a rule to follow in deciding whether or not the nerve should be removed from a tooth that has deep decay. So often, when the decay is removed from a tooth (anterior), there is in the cavity an area lighter in the direction of the pulp than the surrounding dentin. Is this the pulp, and does it mean that the pulp should be removed? The tooth otherwise reacts as any other normal tooth.

Sometimes it happens that, after decay is removed from a posterior tooth, there still remains hard dark dentin, which when drilled seems to extend to the pulp. The dentin is sensitive and reacts as normal dentin, only it is darker. Is it a good policy to remove as much of this as possible without exposing the pulp and fill the tooth, or do you advise removal of the pulp?

F. T. J.

ANSWER.—The light area you mention is not the pulp, as a live healthy pulp is red. There is no rule as to when a pulp should be removed. Sometimes, by careful capping, a pulp that has been actually exposed will remain alive for years without causing trouble, although this procedure is not advisable as a routine.

In some patients pulps seem to die on the slightest provocation, even when the cavity is not deep. This is due to variations in individual patients and their ability to overcome infection, for it has been demonstrated that shortly after the first break in the enamel bacteria can be found in the pulp. It is always best to line deep cavities with cement, and some men make this a universal practice.

It is not necessary to remove discolored dentin in every case, but it is good practice to treat it with silver

nitrate in those places where the discoloration is of no importance.

Editor, Practical Hints:

I am unfortunate enough to have an "inside" waiting room. It seems that regardless of how careful my girl is the room smells stuffy, especially during the winter months. Can you advise anything in the line of deodorants which will help in eliminating this?

C. G. D.

ANSWER.—Deodorants are sold by drug stores and dental supply houses, and you could probably secure more detailed information from those sources. The use of deodorants does not, of course, remove the stuffiness, and frequently they are very objectionable to some people.

We should think that the installation of an exhaust fan together with a means of supplying fresh air not only would overcome the difficulty, but also would be more satisfactory in every way. The installation need not be very expensive and, of course, the fan would have to be run only at intervals.

Editor, Practical Hints:

I have two cases on which I should like advice, and any help you may give will be duly appreciated.

Case 1. Polish woman, 50 years old, apparently in good health, mouth in good condition, upper left lateral devitalized but on x-ray examination looks perfectly all right. The left infraorbital nerve is paralyzed. She complains of the ala of nose, lip and teeth supplied by infraorbital nerve as feeling numb. Can anything be done to bring this nerve back to normal function?

Case 2. Woman, 40 years old, has suffered with ulcers of mouth intermittently for past ten years. They extend down into the throat at times and are situated on the tongue, under the tongue, on the cheeks and lips. They are very painful. They are more severe during periods. Negative Wassermann. Alkalin to neutral saliva. No acidosis present, general health good except that she has been suffering with secondary anemia. Hemoglobin now 90 to 100. These ulcers have been cauterized, will heal up and appear in another spot. Taking alkalins seems to do no good.

W. P. H.

ANSWER.—We must confess at the start that we are utterly unable to diagnose the two cases you present. In Case 1 it is hard to believe that the devitalized tooth is an etiological factor in the anesthesia of the nerve. It seems to us that both cases should be in the care of a good physician.

We shall be glad to publish your letter in THE DENTAL DIGEST as soon as space permits in the hope that some of our readers may be able to assist you.

Editor, Practical Hints:

Can you kindly advise me in reference to the following:

The patient, a physician, while abroad nine months ago contracted a mild stomatitis accompanied by continued increased salivation. He feels that the salivation is more marked on one side. The mouth has been checked up by x-rays, pulp tests, etc. He has consulted various specialists for a general physical check-up. Everything was found negative. All metabolic dis-

turbances have been eliminated. His appetite is very good and he sleeps well at night.

He has been back two months, and the salivation has not in any way decreased and is a source of disturbance in his daily work.

Any information or light on this case will be fully appreciated.

H. C.

Answer.—Mead, in his textbook on diseases of the mouth, says: "Ptyalism is caused by all the varieties of stomatitis except thrush and also by certain drugs, such as pilocarpin and potassium iodid. Etiology may also include pregnancy, rabies, functional nervous diseases, such as hysteria and pancreatic diseases. The pancreas and salivary glands have an intimate relationship.

"Treatment is unsatisfactory. The cause should be removed and iodin or mustard plaster used as a counter-irritation over the glands. If severe, belladonna or its alkaloid, atropin, is given."

This is all the information we can gather on the subject and trust that it may be of value.

Editor, Practical Hints:

I have a patient, male, about 35 years of age, who grinds his teeth at night badly enough to keep the rest of the family awake.

Can you give me a reason for this? Also a remedy?

F. J. F.

Answer.—As a rule, grinding of the teeth is a nervous disorder and as such should come under the care of a physician. However, it is well to examine the mouth carefully for areas of infection and unerupted and impacted teeth, as these may be causing a reflex action on the nervous system.

Editor, Practical Hints:

A woman, about 50 years old, has a vulcanite denture, and the porcelain teeth accumulate a black stain that ordinary brushing will not remove.

The only explanation I can think of is that the teeth did not take the proper glaze. Have you any other suggestions to offer?

F. G. R.

Answer.—Tartar and stains will form on artificial teeth in the same manner as on natural teeth. We often see patients who are unable to remove stains from their natural teeth and, in the case you mention, it may be necessary for you to do it. However, we believe that the daily use, by the patient, of a stiff brush together with a good tooth-paste will prevent to a great extent a recurrence of the trouble.

Unless the glaze has been removed by excessive grinding, we do not believe that this can be the cause.

DENTAL SECRETARIES and ASSISTANTS

Secretaries' Questionnaire

All communications should be addressed to Elsie Pierce, care of THE DENTAL DIGEST, 220 West 42d Street, New York, N. Y.

NOTE—HAVE YOU A BETTER WAY? HAVE YOU A TIME-SAVING SHORT-CUT? DO YOU KNOW A "STUNT" THAT LIGHTENS THE WORK OR MAKES FOR GREATER EFFICIENCY IN THE OFFICE? IF SO, WRITE TO ELSIE PIERCE. YOU MAY HELP MANY GIRLS WHO ARE BEGINNERS—AND YOU KNOW HOW YOU NEEDED HELP DURING YOUR FIRST FEW MONTHS IN A DENTAL OFFICE. PERHAPS YOU NEED HELP NOW. WRITE TO ELSIE PIERCE—SHE WILL HELP YOU.

Dear Miss Pierce:

Can you suggest anything to remove spots on white kid shoes caused by developing solution?

I wonder if you can advise me what to use to clean an amalgam mixer. I clean it every morning, and sometimes oftener, and it still is very black and bad-looking. Also, I find that it does not work so well when not clean.

I have been greatly helped by the Questionnaire, and I hope the information I am requesting will help some others who read it.

B. M. P., Conn.

ANSWER.—For the removal of the spots on your shoes we suggest that you use the same method as for the removal of such stains on uniforms or other white fabrics, though we fear it will not have quite the same results on kid. Use a 5% solution of oxalic acid or acetic acid for about two minutes, then apply a solution of calcium hypochlorite (bleaching powder), then wash off with clear water. Renew the process if the stains do not disappear the first time. Soap and water removes fixing-solution stains.

There are various types of amalgam mixers, but you do not state the type you are using, so we are taking it for granted that it is a stone mortar and pestle. We suggest that you try a solution of oxalic acid, being careful to rinse out well after using.

Dear Miss Pierce:

I have only recently been employed as a dental assistant, but I have done considerable reading as to the assistant's duties and have carried them out to the best of my knowledge. Is the assistant supposed to follow the patient into the operating room and remain there? I feel very awkward with nothing to do but stand around. I have not yet learned to develop x-rays or assist the doctor in filling teeth or any of those duties I presume

should be mine. I feel out of place and ignorant, and I do not think it looks well for the assistant to be running in and out of the operating room. Do you?

As for keeping the office clean, I do that and I am considered a good bookkeeper, but I am timid about going into the operating room. I like the work, and I have read all the *Questionnaire* columns I could find. They surely are a lot of help. I want to be successful because I like the work. Can you help me?

M. J. W., Kansas.

Answer.—A general assistant assists the doctor at the chair and fills out the time with other duties as they come along. There is no reason why you should feel out of place standing at attention and watching the various operations, noting the instruments, materials, medicaments, etc., that the dentist uses for the various operations and gradually learning the many, many things that a competent assistant can do to help the dentist and the patient.

The assistant should seat the patient, change the headrest cover, adjust the napkin on the patient, place the glass or cup for the water, place the necessary instruments, etc., on the bracket table, mix the amalgam or cements or silicates, heat wax or compound, mix plaster for impressions, and do forty other things too numerous to mention here. She can make the appointments, answer the telephone, do the secretarial work, help with the x-rays and simple laboratory duties, etc.

Some dentists do not want the assistant to stand at his elbow all the while, so this makes it possible for her to do many things while the patient is in the chair. Sometimes it is necessary to go in and out of the operating room many times, depending on the manner in which the office is planned as to the other rooms. This should be done quietly and unobtrusively. Rubber heels will help a quiet exit and entry.

The instruments have to be sterilized. This, too, is done between other duties. Some assistants make the swabs, applicators, sponges, etc., that are used, so that an assistant can keep very busy every minute and has no reason to feel awkward at any time.

Be observant, be willing, and you will soon learn what is expected of you. Read the advice to "S. W. M." in the March issue of The Dental Digest and to "E. G. P., Pittsburgh," in the February issue.

For one of our subscribers we have answered the following questions, which we think may be of interest to our readers:

Why is it essential to put sterilizing tablets in the water of the sterilizer?

Answer.—To minimize the corrosive action of the water on steel, of which the instruments are made.

Why do instruments turn rusty in clear water without tablets?

Answer.—The chemical contents of the tablets aid in preventing rust.

How long should instruments be sterilized?

Answer.—The time for boiling instruments is generally set at 10 minutes. The water should be boiling when instruments are placed in it. Instru-

ments should never be left in the sterilizer beyond the time needed for sterilization and should be turned out on a clean, dry, sterile towel and dried with the hands by folding the towel over the instruments, then put away in the cabinet. Exact technic requires resterilization just prior to use.

Can scaling instruments be sterilized?

ANSWER.—It is preferable not to boil finely tempered, delicate cutting instruments, such as scalpels, scalers, etc. They can be scrubbed clean with a germicidal soap and hot water, then prior to using they can be immersed for about 10 or 15 minutes in a germicidal solution, such as lysol, phenol or bichlorid of mercury.

Why do instruments turn rusty in alcohol?

ANSWER.—Instruments turn rusty in alcohol because the alcohol may contain a certain amount of water; also, because of its oxygen content.

Should instruments be scrubbed with just soap and water?

ANSWER.—All instruments should be scrubbed with soap and water before being placed in the sterilizer.

Why do mouth mirrors get a black circle on them?

ANSWER.—This question is not very clear. However, if kept clean, a mirror should not show any rings or stains, unless there has been a seepage of moisture, medicaments, etc., through to the back of the glass which has marred the quicksilver lining.

Can burs be washed and scrubbed with soap? Does this cause dullness? Or can they be cleaned with just a stiff wire brush?

ANSWER.—Just as you should scrub all other instruments after using prior to placing them in the sterilizer, so burs should be scrubbed. It is not scrubbing that causes dullness; it is usage, plus cleaning with wire brushes. Many dentists do not use burs a second time. All burs should be examined through a magnifying glass before being replaced in the cabinet, and if the cutting edges are dull, they should be discarded. Use a stiff bristle brush on the laboratory lathe; do not use a wire one. Always brush lengthwise of the blades of the bur, never across.

What are the steps for cleaning a skull? Lime, water, sunshine and brush?

ANSWER.—We suggest scrubbing it with soap and warm water, rinsing well and placing in the sun to dry. If it has become stained from handling, try a bleaching agent after washing. Javelle water might serve the purpose, or peroxid, or a weak solution of oxalic acid. Follow these by a thorough rinsing in water to which ammonia has been added.

What plants would grow in a reception room where there are no windows? Ferns will not. Do you think a sweet potato would grow without sun?

ANSWER.—Plants will not grow without daylight or sunlight. Use fresh flowers or a few well chosen sprays of artificial flowers that will harmonize with the color scheme of the room. You can have several sets of these, and they can be changed about every week or two.

What are the steps in instrument-sharpening? Should the assistant do this?

Answer.—While many assistants sharpen the instruments, it should not be attempted until one has learned how to do so properly, as the best of instruments can be ruined by improper handling. Only the principles can be given in writing, for dexterity comes with practice acquired through personal instruction. We suggest that you ask the doctor to teach you the proper technic.

Why do instruments peel at points used, especially the scalers and chisels?

Answer.—It is no doubt the nickel finish that peels. The manufacturers of the instruments will be able to give you the reason why, so submit the instruments to them for a "diagnosis."

What is good to wash table tops and bracket tables? To remove scratches, spots and get a shine? Is ammonia harmful to wood on the cabinet?

Answer.—Wash table tops and bracket tables with bon ami and hot water. Scratches cannot be removed from glass or porcelain tops. They will need repolishing and refinishing. We cannot advise you about the spots, as you do not say what caused them, but try oxalic-acid solution. If they are iodin spots, ammonia will remove them. Yes, ammonia will harm any wood surfaces that are stained or varnished.

What liquids should be kept in the spray bottles on the dental unit?

Answer.—The doctor will tell you what liquids he desires to use in the spray bottles.

What should be kept on the bracket table besides the waste receiver and absorbent cotton?

Answer.—Nothing should be kept on the bracket table besides the waste receiver and the container for cotton pellets. Each operation demands its own materials and instruments. In some offices the cotton pellets are placed in individual packets and sterilized, so the cotton holder is not required.

Should artificial teeth be kept on the cabinet or put in the drawers? Some people dread seeing these.

Answer.—We much prefer that artificial teeth, models, instruments, medicaments, etc., be kept out of sight. The majority of patients are nervous enough without having to be reminded of these things by visual demonstration on all sides. A dental office should be clean and cheerful and free from anything that might disturb the patient. Special demonstration cases, etc., can be brought out when needed to illustrate a point, but should not be on display.

Should an assistant take money from a patient? This is a long argued question, so I leave it for the last.

Answer.—This is something that cannot be arbitrarily answered. Each case is a problem unto itself. However, we believe that gratuities or "tipping" reduces the recipient to the servant class. Some patients would feel very much offended if their "gift" were refused, as they truly mean it as a gift and not a gratuity. An assistant in a tactful, gracious manner can usually make the patient understand that she does not care to take money from patients. In some cases patients add a certain percentage to their check when

paying their accounts. "For the nurse," they say. To return this would probably make the patient angry. When a patient gives the assistant money, it is usually because he wishes to show his appreciation for her kindness to him. Should she detect any other attitude, she can quickly and with dignity let it be sensed and the offense will not be repeated. Some dentists object to their assistants accepting money from patients. This can be told to the patient very nicely, and it usually ends there, with no harm done to any one.

Educational and Efficiency Society for Dental Assistants, First District, New York, Inc.

The annual meeting of the Educational and Efficiency Society for Dental Assistants, First District, New York, will be held at Hotel Pennsylvania, Seventh Avenue and 33rd Street, New York, on Tuesday, May 12, 1931. The hour has been advanced to 7 p. m., and the meeting will be called to order promptly as soon as a quorum is present in order to adjourn early. The presentation of written reports by the officers and by chairmen of committees and the election and installation of officers for the ensuing year will be in order. As this is to be a business meeting, it will be open to members of the Society only.

Parliamentary Procedure was the topic of discussion at the March meeting of the Clinic Club. The regular April meeting was devoted to a demonstration on the mixing of cements, synthetic porcelains and amalgam. The May meeting, to be held on May 18th at 7:30 p. m. at the office of Dr. Henry Fowler, 174 West 96th Street, New York, will close the activities of the Club until September. The class in bacteriology was concluded on March 20th. The section on pathology is drawing to a close and will conclude the classes for the season. Study courses will be resumed with the opening of the new season in October. The Library is available at all times to members of the Society. There are articles and books on topics of interest and value to the dental assistant in her daily duties. These may be secured by addressing the Librarian, Miss Sylvia Messinger, 516 Fifth Avenue, New York.

The Society meets regularly on the second Tuesday evening of each month, October to May, inclusive. Its purpose is to aid the dental assistant to further her education and efficiency in her work. The organization does not conduct a registry nor is it connected with any commercial enterprise. Membership is open to dental assistants employed in ethical dental offices, and they are urged to cooperate and to enjoy the educational advantages that the Society offers. The activities are concluded for the season at the end of May, but will be continued with the first meeting of the new season in October.

Colorado Dental Assistants Association

The Colorado Dental Assistants Association met on March 3, 1931, in the rooms of the Smedley Group. Miss Coral Emerson of The Telephone Company was guest speaker and gave a very interesting talk on *The Correct Use of the Telephone*. Miss Alice Olsen was chosen delegate to the national convention at Memphis next October, and Miss Ruth Taylor alternate delegate.

The class in dental anatomy being given by the School of Dentistry at the University of Denver is proving very interesting and instructive.

What Is Our Part in Raising the Standard of the Dental Assistant?*

By ESTELLE M. DURY, Cincinnati, Ohio

My purpose in writing this paper is not so much to express my personal views as to make statements which I trust will invite discussion both pro and con. In this manner the larger number participating will result in the greater amount of good derived from this meeting and from the efforts of the essayist.

At the onset let us as assistants consider whether we may rest on our present standard. The answer is obviously no. Progress is the watchword of the age, and if we are to obey the law of self-preservation and survive, we must go forward.

Let us pause to review briefly the progress of dentistry during the past twenty-five years. Dentistry has ceased to be a profession devoted to the mechanics of restoration. Its present status is regarded as a means to health rather than as an end to restoration. That the medical profession thus looks upon its sister profession is proved by the fact that no great public health program is conceived without a provision for mouth hygiene. The various health councils of this city, such as the Health Council, the Anti-Tuberculosis League, the Cancer Council, all include representatives from the dental profession.

But, you ask, what has this to do with the standards of dental assistants? The answer is this. Because of the new responsibilities which dentistry has assumed the dental profession has been forced to raise its standards. Does it not seem plausible that, with the increased standard required of him, the dentist will in turn require a standard higher than heretofore of his assistant? What, then, will be the nature of these additional requirements?

* Read before the Cincinnati Dental Assistants Society, Nov. 28, 1930.

First, I believe we may all read the handwriting on the wall that some day an adequate curriculum will be provided for the proper training of girls as dental assistants in the dental schools and colleges, and undoubtedly a high-school education will be required as a basis for this training. We have already witnessed the evolution of the dental assistant into the specialization of dental hygienist, and may we not project our thoughts into the future to gaze upon the girl who has specialized in becoming a college-trained dental assistant? The greatest dental economists today, in their courses for dentists, require that assistants familiarize themselves with certain fundamental business laws.

If such a course were sponsored by the universities of which dental schools are a part or with which they are affiliated, the economic as well as the basic mechanical principles of dentistry as applicable to dental assistants could be taught in a short space of time and with a comparatively small expenditure of money.

Would such an expenditure be justifiable? Let us first review the experience of the dental hygienist. Has it been profitable for her to invest in a course which prepares her for the duties required of a dental hygienist? I think that as a group we may unhesitatingly reply in the affirmative. It is only natural, of course, that some will not make the most of their opportunities. However, the individual shortcomings should not cloud the possibilities which lie before those who can qualify.

You may ask, would a dentist be willing to pay a salary commensurate with the investment of time and money necessary in taking a course provided for a dental assistant? Again I feel fairly certain that the profession as a whole would react favorably to such an arrangement. Are not some assistants today who have graduated from the school of experience receiving salaries which have justified the faith and labor they have reposed in their duties as dental assistants? May we not accept as a modern axiom that "salary depends upon the value of the assistance rendered the dentist"?

For the sake of argument may we hastily compare the first year of a girl who has received her degree, let us say, as a graduate dental assistant with one who has not. How much time in dollars and cents does the dentist spend in instructing the novice in the nomenclature and types of instruments to be used in certain operative procedures, the system of bookkeeping, the pouring up of models, casting of inlays, proper trituration of alloy and the mixing of plaster materials? To the better dentist this time amounts to many dollars, and I am reasonably sure that he would rather pay more salary in lieu of the time spent and material wasted in instructing the beginner. It is quite true that no two dentists work the same or employ the same technic. However, possessing the underlying principles, the graduate assistant has but to adapt herself to the peculiarities of the individual dentist, if she would succeed.

In conclusion, owing to the absence of such specific training available to the dental assistant today, I feel that our part in raising the standard of the dental assistant lies in a program spon-

sored by the dental assistants' organizations which would disseminate the knowledge necessary to make the assistant more valuable to her employer. How can this be done? It is our problem, and I trust that this paper will be of some value in stimulating discussion which will elevate the status of the dental assistant.

1010 Union Central Bldg.

[DIET]

I find it impossible to endorse the recommendation that the rank and file of dentists generally should assume the additional duty of discussing dietetics with their patients, for the reason that few dentists know more about that subject than do their patients. Dietitians are pretty generally agreed that a thorough study of each person's digestive apparatus and an evaluation of its capabilities is necessary before prescribing a diet, for there is no doubt that "shotgun" dietetic advice is very likely to do harm. In this connection, it is quite interesting to observe that although a great deal of diet propaganda has been aired during the last ten or fifteen years, the rank and file have failed to discover any perceptible change in the condition of the mouths or teeth of their patients.

—Puterbaugh.

American Dental Association Meeting

Memphis, Tennessee, October 19-23, 1931

An Autumn Vacation in the Nation's Playground

The playgrounds of a continent will join Memphis in welcoming the American Dental Association to the South on October 19-23, 1931. Never before has an A. D. A. convention offered such a vast range of opportunity to its members for combining their convention trip with a vacation beyond comparison, a vacation in the South in October, when the South possesses the superlative of its charm.

Fortunate it is, certainly, that the seventy-third annual gathering of the nation's dentists is coming to the South, where such vacation wonderlands exist in such endless variety. More fortunate that it is to be held in Memphis, at the very crossroads of the center of the South, with a hundred major playgrounds within easy reach either en route to the convention or after it, to say nothing of its proximity to the Gulf, the West Indies and the Carribbean, should your vacation ambitions carry you south across the Tropic of Cancer.

He who likes his history can find no more fertile hunting-ground than Tennessee—visited by white man four centuries ago, when De Soto found the Mississippi at Memphis, three-quarters of a century before the landing of the Pilgrims; fought for by French and Spanish and English before the Revolution; prize of a far-flung conspiracy that was to have sold it out to Spain long after the United States was a nation; scene of the Civil War's fiercest and most decisive struggles, and all of it ideally accessible by rail or by highways that are fast becoming the peer of any the nation affords.

October in the South is Indian summer. There is no more glorious season of the year in any part of America. There's still the warmth of summer without its oppressive heat. There's enough of the beginning of fall to make your scenic surroundings en route doubly never-to-be-forgotten. There are sports of autumn as well as of summer. There are many resorts of every kind, more pleasant to visit than in more crowded times at the height of the season that is just closing or the season that is just beginning.

The South in America is a country all its own. Seen once, it must be visited again. Never seen, it presents the attractiveness of originality in its every phase that no other section can present. In itself a place to see, it is doubly so as the gateway to the tropics.

And Memphis, where the A. D. A. is to gather in October, is the central gateway, from east or north or west. Remember that, in planning your 1931 vacation, in mapping your 1931 convention trip and what is to follow.

American Dental Association Meeting

Memphis, Tennessee, October 19-23, 1931

HOTEL RESERVATIONS

In securing hotel reservations for the 1931 session, consult the hotel rate-sheet and fill out the blank application below. Mail immediately to the hotel you wish to patronize. The hotel will then advise you of the reservation which they make for you. In case your first choice cannot be made, kindly indicate second and third choices. If none of your choices are available, the Hotel Manager will mail your application to the Chairman of Halls and Hotels Committee, who will place your reservation in as favorable a hotel as possible.

Please remember that a reservation constitutes a contract with the hotel to provide you with the accommodations you desire. If you find it impossible to carry out your part of the contract, namely, to occupy the room at the time agreed upon, please write or wire the hotel, in order that your room may be available for other members.

HOTEL	SINGLE WITH BATH	DOUBLE WITH BATH	SINGLE WITHOUT BATH	DOUBLE WITHOUT BATH
Adler, 73 Linden Ave	$2.00 up	$3.50 up 5.00 up (Twin beds)	$1.50 up	$2.50 up
Ambassador, 347 So. Main	2.00	3.50	1.50	2.50
Catholic Club, 185 Adams	...	...	1.25	2.00
Chickasaw, 99 So. Main	...	...	1.00	1.50
Chisca, 270 So. Main	2.00 up	4.50 up 5.00 up (Twin beds)	2.00 up	3.50 up
Claridge, 109 No. Main	3.00 up	4.50 up	...	...
DeSoto, 154 E. Calhoun	...	...	1.25	2.00
Elk's, 69 Jefferson	3.00-$3.50	4.00- 5.00 5.00- 6.00 (Twin beds)	2.00-$2.50 Con. bath	3.00-$4.00 Con. bath
Forest Park, 855 Union	2.00	2.50	1.00- 1.50	1.50- 2.00
Gayoso, 139 So. Main	3.00 up	5.00 up	2.00 up	3.00 up
Hermitage Apts., 200 Union	1.50	2.75	1.00	1.75
Wm. Len, 110 Monroe Ave	2.50 up	4.50 5.00 (Twin beds)	...	...
Longinotti, So. Main St	...	...	1.00	1.50
Parkview, 1914 Poplar	3.50	5.00- 6.00	...	...
Peabody, 149 Union	3.50 up	5.50 up 7.00 up (Twin beds)	...	...
Plaza, 214 Calhoun	2.00	3.00	1.50- 2.00	2.50- 3.00
Polk Apts., 630 Madison	2.00	2.50- 3.00	...	...
Pontotoc, 69 Pontotoc	1.50	2.00	1.00	1.50
Tennessee, 80 So. Third St	2.00 up	3.00 up	...	...
Winona, 110 E. Calhoun	2.00	3.00	1.00- 1.50	2.00- 3.00
Waldorf, So. Main St	1.50	2.00	1.00	1.50

MAIL THIS APPLICATION DIRECT TO THE HOTEL

HOTEL RESERVATION

AMERICAN DENTAL ASSOCIATION, MEMPHIS, TENN., OCTOBER 19-23, 1931

.....Hotel ....., 1931

Memphis, Tenn.

Please reserve sleeping room accommodations as noted below:

.....Room(s) with bath for.....people. Rate per day desired $.....

.....Room(s) without bath for.....people. Rate per day desired $.....

Second choice.....Third choice.....

Please confirm this reservation to applicant. I further agree to notify the hotel at once in the event I am unable to use this reservation.

Important to Hotel Manager.—In the event you cannot accept this reservation, please forward this application at once to DR. E. F. SIMPSON, CHAIRMAN HALLS AND HOTELS COMMITTEE, 735 Sterick Bldg., Memphis, Tenn., who will attend to the assignment of this reservation.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912.

Of The Dental Digest
at New York, N. Y.

Published monthly
for April 1, 1931.

State of New York, } ss.:
County of New York, }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Seeley Vander Veer, who, having been duly sworn according to law, deposes and says that he is the Assistant Secretary of The Dentists' Supply Company of New York, Publishers of The Dental Digest, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

NAME OF	POST OFFICE ADDRESS
Publisher, The Dentists' Supply Co. of New York	220 West 42nd St., New York, N. Y.
Editor, George Wood Clapp	New Rochelle, N. Y.
Managing Editor, George Wood Clapp	New Rochelle, N. Y.
Business Manager, L. W. Dunham	New Rochelle, N. Y.

2. That the owners are:

The Dentists' Supply Co. of New York	220 West 42nd St., New York, N. Y.
The Amalgamated Dental Company, Ltd.	5-12 Broad Street, London, England
Lewis L. Fawcett	1347 Dean St., Brooklyn, N. Y.
Leroy Frantz	Davenport Neck, New Rochelle, N. Y.
Gertrude L. Frantz	221 Cheyenne Road, Colorado Springs, Colo.
Viola F. Good	10551 Wyton Drive, Los Angeles, Calif.
Dean C. Osborne	839 St. Marks Ave., Brooklyn, N. Y.
Sade E. L. Osborne	839 St. Marks Ave., Brooklyn, N. Y.
John R. Sheppard	1021 Park Avenue (Apt. 14A), New York, N. Y.
John R. Sheppard, Trustee for John R. Sheppard, Jr.	1021 Park Avenue (Apt. 14A), New York, N. Y.
Ruth A. P. Sheppard	1021 Park Avenue (Apt. 14A), New York, N. Y.
Ethel F. Tomb	167 Lake Ave., Newton Centre, Mass.
George H. Whiteley	905 South George St., York, Pa.
George H. Whiteley, Jr.	Boxhill, York, Pa.
J. Osborne Whiteley	905 South Beaver St., York, Pa.
Lillian S. Whiteley	905 South Beaver St., York, Pa.

The Amalgamated Dental Company, Ltd., is a corporation organized under the laws of England, with an authorized capital stock of £2,850,000, ownership of which is scattered over a considerable part of Europe and includes a long list of names unknown to us, and probably a number of banks and other corporations.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

THE DENTISTS' SUPPLY COMPANY OF NEW YORK,
Seely Vander Veer, *Asst. Sec'y.*

Sworn to and subscribed before me this 24th day of March, 1931.

[Seal] Emilie S. Schopp
Notary Public, Westchester County
Certificate filed in New York County
Clerk's No. 991, Register's No. 1-S-687 My commission expires March 30, 1931.

FUTURE EVENTS

THE MASSACHUSETTS DENTAL SOCIETY will hold its Annual Meeting at the Hotel Statler, Boston, Mass., May 4-7, 1931.

FRANK A. DELABARRE, D.D.S., *President*,
520 Beacon St., Boston, Mass.

THE MASSACHUSETTS DENTAL HYGIENISTS' ASSOCIATION will hold its next Annual Convention at the Hotel Statler, Boston, Mass., May 4-7, 1931. All registered dental hygienists are urged to attend.

THE PENNSYLVANIA STATE DENTAL SOCIETY will hold its Sixty-third Annual Meeting at the William Penn Hotel, Pittsburgh, Pa., May 5-7, 1931.

A full program of papers and demonstrations is being arranged, together with several innovations. An attractive social program for members and those accompanying them is in course of preparation.

A cordial invitation is extended to all dentists who are members of the American Dental Association.

W. HARRY ARCHER,
Chairman Publicity Committee,
322 Jenkins Arcade, Pittsburgh, Pa.

THE SOUTH CAROLINA STATE DENTAL ASSOCIATION will hold its Sixty-First Annual Meeting at Columbia, S. C., May 11-12, 1931, instead of May 7-8, as previously announced.

N. W. MACAULAY, *Secretary*,
Medical Bldg., Columbia, S. C.

THE TEXAS STATE DENTAL SOCIETY will hold its Fifty-first Annual Convention at Houston, Texas, May 12-15, 1931. A cordial invitation to attend is extended to all dentists who are members of the American Dental Association.

For information relative to exhibits, write to Dr. E. A. Morris, Chairman, 1518 Medical Arts Bldg., Houston, Texas.

TOM F. COYLE, *President*,
Orange, Texas.
J. G. FIFE, *Secretary-Treasurer*,
Medical Arts Bldg., Dallas, Texas.

THE DENTAL SOCIETY OF THE STATE OF NEW YORK will hold its Sixty-third Annual Meeting at Hotel Pennsylvania, New York, May 12-15, 1931.

The officers and committees with much pleasure invite the attention of dentists and guests in and outside of the state to participate in the program which has been arranged carefully along lines entirely different from those pursued in previous years.

PROGRAM

Opening Session—Tuesday, May 12, 1931.
Thomas Parran, Jr., M.D., Commissioner, State Department of Health, Albany, N. Y.

Symposium on Economics
Michael M. Davis, Ph.D., Director Medical Service, Julius Rosenwald Fund, Chicago, Ill.
George Wood Clapp, D.D.S., Editor, THE DENTAL DIGEST, New York.
James Brady, D.D.S., Chairman, Bureau of Economics, American Dental Association, Philadelphia.

Symposium on Pre-Natal Feeding
Wm. H. Ross, M.D., President, State Medical Society, Brentwood, N. Y., presiding.
Eliot Bishop, M.D., President, New York Obstetrical Society, Brooklyn, N. Y.
Roger H. Dennett, M.D., Director of Pediatrics, New York Post-Graduate Hospital, New York.
C. P. Sherwin, M.D., Professor of Physiology, Fordham University, New York.

Symposium on Education
H. E. Friesell, D.D.S., Dean, University of Pittsburgh Dental College.
M. E. Winternitz, M.D., Dean, Yale University Medical School.

Scientific Research—The Metabolism of the Dentin and Its Relation to Dental Decay
Charles Bodecker, D.D.S., Chairman, New York.
Edmund Applebaum, D.D.S., New York.
Herman R. Churchill, D.D.S., University of Pennsylvania.

Periodontia
Clayton H. Gracey, D.D.S., Detroit, Mich.

Pulp-Canal Therapy
A. E. Webster, D.D.S., Emeritus Dean, Dental College, University of Toronto.

Focal Infection
Boyd Gardner, D.D.S., Mayo Clinic, Rochester, Minn.

Partial Restorations (Removable)
Herman E. S. Chayes, D.D.S., New York.

Exodontia for the General Practitioner
Armin Wald, D.D.S., New York.
Prosthetics
Charles M. McNeely, D.D.S., Brooklyn, N. Y.
Dental Pathology
J. L. T. Appleton, Jr., D.D.S., University of Pennsylvania.
Partial Restorations
H. A. Maves, D.D.S., Minneapolis, Minn.

The program consists of carefully selected essays and three symposiums, all by authorities in every field of dentistry, as well as educational and table clinics, entertainment and scientific manufacturers' exhibits. The official program will be issued about April 20th.

An extra day has been added so that all in attendance may have more time to devote to essays and clinics as well as participate in other events.

Dr. F. A. Adams, 8 West 40th St., New York, is Chairman of the Educational Clinics Committee.

Dr. John P. Hanks, 17 Park Ave., New York, is Chairman of the Exhibits Committee.

Hotel Pennsylvania is ideally located and equipped for convention purposes, and our members and guests will receive prompt and courteous attention. Make early reservations.

Passengers arriving at the New York Central Terminal or other railroad terminals except the Pennsylvania Station are advised to take a taxi to the Pennsylvania Hotel.

We extend a cordial welcome to all members of the American Dental Association, the Canadian Dental Association, and dentists of foreign associations.

ALFRED WALKER, *President.*
100 West 59th St., New York.
A. P. BURKHART, *Secretary.*
57 East Genesee St., Auburn, N. Y.

THE DENTAL HYGIENISTS ASSOCIATION OF THE STATE OF NEW YORK will hold its Eleventh Annual Meeting at Hotel Pennsylvania, New York, May 12-15, 1931.

The Program Committee has been fortunate in obtaining the following speakers: Dr. Ira S. Wile, of Mt. Sinai Hospital, of the College of the City of New York, of Hunter College and of the School of Social Research; Dr. Van Alstyne, Supervisor of Oral Hygiene, State Department of Education, Albany, N. Y.; Dr. Lois Hayden Meek, Director of Child Development Institute, Professor of Education at Columbia.

Excellent clinics and topical discussions have been arranged.

A cordial invitation is extended to members of the dental profession, dental hygienists and dental assistants.

EVELYN M. GUNNARSON, *President.*
MARY A. OWEN, *Chairman*
Publicity Committee.
28 Tremaine Ave., Kenmore, N. Y.

THE KINGS COUNTY DENTAL SOCIETY will hold its Annual Meeting at the Building of the Medical Society of the County of Kings, 1313 Bedford Ave., Brooklyn, N. Y., on Thursday, May 14, 1931, at 8:30 P. M.

The election and installation of officers will take place.

H. A. Overstreet, A.B., University of California, and B.Sc., Oxford, will be the essayist. His subject will be *The Art of Proper Living.* Mr. Overstreet has been connected with the University of California, the University of Chicago, Columbia University, the New School for Social Research, and is now head of the Department of Philosophy at the College of the City of New York. He is the author of *Influencing Human Behavior* and *About Ourselves.*

J. L. FELSENFELD, *President,*
H. AUSUBEL, *Chairman,*
Educational Committee,
1 DeKalb Ave., Brooklyn, N. Y.

THE BROOKLYN DENTAL ASSISTANTS STUDY CLUB OF THE SECOND DISTRICT will hold its Second Annual Meeting at 62 Hanson Place, Brooklyn, N. Y., on Friday, May 15, 1931, at 8 P. M. Nomination of officers will take place. This will be a meeting for members only.

THE IOWA STATE DEPARTMENT OF HEALTH will hold its next examination of applicants to practice Dentistry in Iowa at the State University of Iowa, College of Dentistry, Iowa City, Iowa, May 25-28, 1931.

Applications properly executed, together with college diploma and fee, must be filed with the State Department of Health at least fifteen (15) days prior to date of examination.

All applicants who take both theory and practical examinations must present themselves at the College of Dentistry, Iowa City, Iowa, at 9 A. M. on May 25th. Examinations in theory will begin at 9 A. M. on May 25th and will continue until all have finished.

Applicants taking the practical portion of the examination only will present themselves at the College of Dentistry, Iowa City, Iowa, at 8:30 A. M. on May 26th, and may work on their set-up with those taking the theory portion when they have concluded these examinations.

All set-ups must be in the hands of the Board on the evening of May 26th. Work on gold foil, gold inlay and gold crown may be started at 8:30 A. M. on May 27th. All demonstrations must be concluded by 6 P. M. on May 28th.

D. C. STEELSMITH, M.D., *Commissioner,*
Iowa State Department of Health.

THE ONTARIO DENTAL ASSOCIATION will hold its Annual Convention at the Royal York Hotel, Toronto, Ontario, Canada, May 26-29, 1931. A very fine program of essays and clinics has been prepared.

Ethical dentists of Provinces of Canada outside of Ontario and from the United States are invited to attend as guests of the Ontario Society.

FRED J. CONBOY, *Secy.-Treas.*,
1442-A Yonge St., Toronto, Ont., Canada.

THE NEW MEXICO BOARD OF DENTAL EXAMINERS will hold its next meeting at Santa Fe., N. M., May 27-29, 1931.

For further information, address

J. J. CLARKE, *Secretary*,
Artesia, N. M.

THE NORTHERN OHIO DENTAL ASSOCIATION will hold its Seventh-fourth Annual Meeting at Hotel Winton, Cleveland, Ohio, June 1-4, 1931.

These meetings, as in the past, will be featured by teaching clinics; that is, the essayist will give a practical demonstration also in the form of a clinic.

The following essayists and clinicians will appear on the program:

W. J. Charters, Des Moines—*Toothbrush Manipulation*
F. Blaine Rhobotham, Chicago—*Children's Dentistry*
Howard C. Miller, Chicago—*Oral Surgery*
Arthur J. Cramp, Chicago—*Patent Drugs*
Stanley D. Tylman, Chicago—*Fixed Bridgework*
Milton T. Hanke, Chicago—*Diet*
M. M. DeVan, Philadelphia—*Full Dentures*

A cordial invitation is extended to all ethical dentists.

WALTER S. SARGEANT,
Publicity Chairman,
807 Nicholas Bldg., Toledo, Ohio.

THE MISSISSIPPI DENTAL ASSOCIATION will hold its annual meeting at Gulfport, Miss., June 4-6, 1931. All ethical dentists are invited.

A. S. HOPKINS, *Executive Committeeman*,
Gulfport, Miss.

THE TENNESSEE BOARD OF DENTAL EXAMINERS will meet at the Dental Department, University of Tennessee, Memphis, Tenn., June 8, 1931, at 9 A. M., for the purpose of examining all applicants who present credentials acceptable to the Board. Hygienists also will be examined. Bring credentials to the Board meeting for examination by the entire Board.

Applications should be in the hands of the Secretary five days before the Board meeting. For application and clinical requirements, address

F. W. MEACHAM, *Secretary-Treasurer*,
911 Hamilton National Bank Bldg.,
Chattanooga, Tenn.

THE GEORGIA STATE DENTAL SOCIETY will hold its Annual Meeting at the Biltmore Hotel, Atlanta, Ga., June 10-12, 1931.

G. A. MITCHELL, *Secretary*,
Candler Bldg., Atlanta, Ga.

THE MASSACHUSETTS BOARD OF DENTAL EXAMINERS will hold an examination for registration for both dentists and oral hygienists in the City of Boston, Massachusetts, June 10-13, 1931. All applications must be filed at the office of the Secretary at least ten (10) days before date set for examination.

Full information, application blanks, etc., may be secured at the office of

W. HENRY GRANT, *Secretary*,
Room 146, State House, Boston.

THE MINNESOTA STATE BOARD OF DENTAL EXAMINERS will hold its next meeting at the University of Minnesota, June 12-20, 1931. For application and further information, address

DR. WALTER H. SMITH, *Secretary*.
2337 Central Ave., Minneapolis, Minn.

THE INDIANA STATE BOARD OF DENTAL EXAMINERS will meet in the House of Representatives Room of the State House, Indianapolis, Ind., on June 15, 1931, at 8:00 a. m., for the purpose of conducting an examination of all applicants for licensure in Indiana who come with proper credentials and are accepted for examination.

All applications should be in the hands of the secretary one week before the meeting. The examination will probably last through four days. For applications, clinical requirements and other information, address

J. M. HALE, *Secy.-Treas.*,
Mount Vernon, Ind.

EXAMINATION FOR APPOINTMENT TO DENTAL CORPS

UNITED STATES NAVY

A competitive examination for appointment to the Dental Corps of the United States Navy will begin June 15, 1931, at the U. S. Naval Medical School, Washington, D. C. Candidates must be citizens of the United States, between twenty-one and thirty-two years of age at the

time of appointment, and graduates of recognized dental schools. The examination will be both theoretical and clinical and the usual duration is about seven days. A circular containing full information relative to the Dental Corps and the prescribed form of application may be obtained from the Bureau of Medicine and Surgery, Navy Department, Washington, D. C. No allowance is made for the expense of applicants appearing for examination.

NOTICE OF EXAMINATION FOR ENTRANCE INTO THE REGULAR CORPS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Examination of candidates for commission as Assistant Dental Surgeon in the Regular Corps of the U. S. Public Health Service will be held at Washington, D. C., on June 15, 1931.

Candidates must be twenty-three years and not over thirty-two years of age. They must have been graduated in dentistry at a reputable dental college and have had a total of seven years' educational training and practical experience. They must undergo a thorough physical examination and must satisfactorily pass oral, written and clinical tests before a board of officers.

Successful candidates will be recommended for appointment by the President, with the advice and consent of the Senate.

Request for information or permission to take this examination should be addressed to the Surgeon General, U. S. Public Health Service, Washington, D. C.

THE DELAWARE BOARD OF DENTAL EXAMINERS will hold its next meeting at the Municipal Building, Tenth and King Streets, Wilmington, Del., June 17-18, 1931, from 9 A. M. to 5 P. M.

For further information, address

W. S. P. Combs, *Secretary,*
Middletown, Del.

THE MAINE STATE DENTAL SOCIETY will hold its Sixty-Sixth Annual Meeting at the Poland Spring House, South Poland, Maine, June 18-20, 1931.

W. D. Taylor, *Secretary,*
Mechanic Falls, Maine.

THE OKLAHOMA STATE BOARD OF DENTAL EXAMINERS will hold its next meeting in Oklahoma City, Okla., June 22-25, 1931.

E. E. Sanger, *Secretary,*
Yukon, Okla.

THE CONNECTICUT DENTAL COMMISSION will meet at Hartford, June 24-27, 1931, for the examination of applicants for license to practice dentistry and dental hygiene and to transact any other business proper to come before it.

Applications should be in the hands of the Recorder at least two weeks before the meeting. For application blanks and further information, apply to.

Almond J. Cutting, D.D.S., *Recorder.*
66 Main Street, Southington, Conn.

THE AMERICAN SOCIETY OF ORAL SURGEONS AND EXODONTISTS will hold its Thirteenth Annual Meeting at The Elks' Hotel, Memphis, Tenn., October 16-17, 1931.

Howard C. Miller, *Secretary,*
55 East Washington St., Chicago.

THE AMERICAN DENTAL ASSISTANTS ASSOCIATION will hold its Seventh Annual Meeting at Memphis, Tenn., October 19-22, 1931.

Ruth S. Rogers, *President.*
Suite 803, 223 West Jackson Blvd.
Chicago, Ill.

THE AMERICAN DENTAL HYGIENISTS' ASSOCIATION will hold its Eighth Annual Session in Memphis, Tenn., October 19-23, 1931.

Agnes G. Morris, *Secretary,*
886 Main St., Bridgeport, Conn.

THE OHIO STATE DENTAL SOCIETY will hold its Sixty-Seventh Annual Meeting at the Netherland Plaza Hotel, Cincinnati, Ohio, December 1-3, 1931.

E. C. Mills, *Secretary,*
255 East Broad St., Columbus.
E. J. Roche, *Publicity Chairman,*
453 Doctors Bldg., Cincinnati.